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FROM THE EDITOR

The future of computing with our Commodores has reached a new chapter.. or so it would seem. With the results of the auctioning off of Commodore's assets finally in, there's a new company at the helm. Where will this new company lead us?

Undoubtedly, there are few of those among us who wouldn't like to know the answer to that question. But certainly, it's far too soon to tell, far too early for even the new owners to have a clear picture of where they're going or how they'll eventually get there.

But if anything at all is apparent, it is this: gone are the days of struggling with Commodore over support for C-64 and 128. If the new owners are as difficult to deal with as past Commodore management has been, so be it—we're no worse off. If, on the other hand, the new owners are as open to new ideas and licensing of technology as they have thus far indicated, we could very well be on our way to a renewed vitality for our long-time computerized companions.

"WE COULD VERY WELL BE ON OUR WAY TO A RENEWED VITALITY FOR OUR LONG-TIME COMPUTERIZED COMPANIONS."

I'll skip the details of who the new owners are, and how they came to own Commodore's rights; Jason Compton, Editor of Amiga Report has provided us with all that information in his special report located elsewhere in this issue. Facts? There aren't many to go on yet. But there's plenty of room for rampant speculation, and I've got plenty of that to go around.

The calls have come in regularly from users everywhere. Everyone wants to know what will happen. Will there be new 64's? 128's? Will the new owners produce the C-65 that Commodore came so close to completing before scrapping the plan altogether? Will there be parts, or new supplies of peripherals? The questions seem unending.

We do know that the C-64 will be produced, and in fact, some reports lead us to believe that it is already in production. We now know that it will be marketed in at least some corner of the world. It's doubtful that the new owners will themselves attempt any marketing of the C-64 or the 128 in North America. The same goes for the many peripherals common to our 8-bit machines. But with the computer back in known production, we shouldn't have to worry as much about parts being hard to come by, and if anyone on this side of the globe has enough interest in marketing or manufacturing any of the 8-bit products, the way seems clear for that possibility.

We've all gone through a long wait to see exactly what would become of Commodore's assets; and now that this part is over, we'll no doubt have to wait a bit more to see what can and will be done to continue or to further the future of our favorite computing platform.

But while we wait for those answers to arrive, we can thrive on the fact that it's now more a matter of "will it be done?" than a matter of "can it be done?"

Doug Cotton
Editor

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BACKTALK

LETTERS AND QUESTIONS FROM OUR READERS

Numeric Keypads & Printer Drivers

Dear CW,

First let me say I have found your magazine a fine piece of work. Special thanks to you for giving the information on the user port connectors from Digi-Key. The only place I had ever seen them was at a Hamfest. I have a 64 "C" with your JiffyDOS and love it. My problem is sometimes when I have to type in long lists of numbers, it is slow going typing them from the this keyboard. I have thought about buying a 128 but I am on a limited budget. Is there a way I could add the number keyboard like the one on the 128 and the other big boy machines? It would be nice to be able to place it either to the left or right side of the keyboard?

Oh yeah, while I am asking questions, do you know if PRINTSHOP, or anyone else, have new drivers for the new generation of printers? Last year my wife bought me a new Star NX-2480 and a Super Graphix Sr. interface. The Commodore side of the disk works well, but only with 2 block graphics. The 3 block side of the disk has a list of printer drivers but I can't get anything to print right. Either I get trash or the document is stretched down to the next sheet of paper. If not, do you know if there is a good second choice in place of PRINTSHOP that does the just as much or more?

Thank you very much for your time, effort and your continued support of the "64" (The so called dead chicken head.). It is a fine machine and tough as nails (it has to be, for it to be still working after I desoldered and soldered that JiffyDOS chip).

Respectfully,
Tony N. Hughes

It has been years since I've seen anyone offering the numeric keypads for a C64, but they did at one time exist. Perhaps we can look into making one for an upcoming installment of Hard Tips.

The Print Shop has never been updated to handle modern (24-pin) printers. We offered some suggestions in CW Issue 2 (Top Tips, pg. 14) on how to get 24-pin printers to work with some older applications, but these may or may not work with your particular copy of The Print Shop. Some answers to why modern printers don't work well with many of the older applications appeared in an article by Ron Hackley (of FGM Connection) in CW Issue 3 (Top Tips, pg. 14). One program I might recommend is Ron's very own Fun Graphics Machine. It's a bit more complex to use than The Print Shop, but can do much more. I'm not certain if Ron has started including 24-pin printer drivers yet, but I do know he's been working on them, and can probably assist you with getting FGM working with your printer.

Commodore World reserves the right to edit letters published in this column for length, spelling, and clarity. If you have questions or comments, write to: *CW Backtalk, c/o Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028.*

Butterflies are Free?

Dear CW,

Thank you. From your JiffyDOS to your RAMLink to Commodore World magazine. Thank you.

May a thousand spectral-colored butterflies descend upon your window sills each morning.

Sincerely,
Dale Bryant

Hey, as long as they clean up after themselves, I'm all for it. And you're quite welcome.

Help Articles: 2, GEOS: 0

Dear CW,

The article, Anatomy Of The Printed Page by Don Radler was a real joy to read, and should help us Commodore users understand laying out a page a little better.

Also the article Word Tools by Gaelyne R. Moranec, was another nice article to read and learn from. I think most of us Commodore users that are still using their Commodores are not gamers or GEOS users. From the twenty or so Commodore users that I know, only one of them uses GEOS applications. This program is just too over-copy-protected to be of any real used to most of us Commodore users.

Word Processing articles are a big help among Commodore users.

Articles telling us Commodore users how someone does something with their Commodore, are very helpful. Printing articles, how to format a page, which program was use to get the end results.

Showing these results, so the reader can see the finished paper. For my word processing, I use the program The Write Stuff. And as my computer knowledge grows, this great program also grows.

I live in a small town, with twenty Commodore users. We have had a Commodore club for 10 years, a BBS for over nine years.

Give up my 64! I think not, I have only started to learn a little of the many things it can do.

Phil Lindsey

Thanks, Phil. I'm sure the authors of the articles you mentioned will be pleased to hear you enjoyed their work. And certainly we plan to have more articles on how to make use of some of the fine software we have available to us. In our next issue, in fact, I believe we'll be running an article on what often seems to be the most mysterious of productivity programs: spreadsheets.

Concerning GEOS, I might have to disagree a bit. Certainly it isn't for everyone-and there's a tendency to either love or loathe the GEOS products. But from our vantage point, I can tell you that GEOS is probably the hottest selling productivity package for the Commodore. GEOS does, however, require a little more than a minimum hardware configuration to be really enjoyable-not many 1541-only system users will take an instant liking to the program.

While the initial installation is sometimes tough for new users, I don't see the copy-protection as being anywhere near as bad as you'll find on many other programs. After all, GEOS provides every owner with a Backup System disk in case your original goes bad, and the applications can all be freely copied to work disks after installation. There are even reasonably inexpensive ways to make your own backup boot

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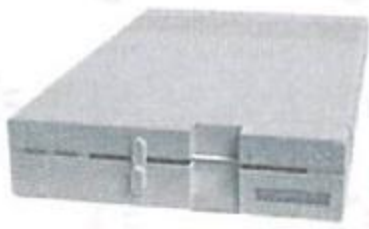

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disks, using utilities like geoMakeBoot or Maverick. About the only bad side-effect of GEOS' copy-protection that I can think of is that you'll have trouble getting "used" GEOS applications to work with your system, since GEOS assigns a unique serial number to each system and the applications are keyed to work only with that serial number after installation. But given the fact that you can easily make use of newly purchased applications on something other than the 1541 disk they come on (a real boon to users with 3.5" disk drives, hard drives, and RAM devices), I think the positive attributes outweigh this singular negative one.

Sad Farewell

Dear CW,

Please cancel the extension to my subscription, Commodore World is not meeting my needs.

As a hobbyist, my favorite part has been Advanced Techniques followed closely by Hard Tips. These two columns showed great promise and I had hoped they would grow further along the lines they first showed and get even deeper (such as midi, interface chips, simple robotics, etc.). Unfortunately, over the last few issues Hard Tips has gotten shallower and now Advanced Techniques has been completely dropped.

Run and Gazette were completely useless to me because they always seemed stuck in perpetual beginners mode. Sadly, CW looks like it's going to adopt this same philosophy. I mean how many times can you keep RUNning "What order to turn on your peripherals" type articles.

Don't get me wrong, I understand there are always new users who need their needs met too and there has to be variety or anyone would get bored. But I feel advanced users are the ones more often ignored. Just because we're ready and can handle advanced level topics doesn't mean we already know the stuff. And I think with something like the 64 the ratio of users leans much more towards the intermediate/advanced. How about a poll to find out? Or a readers' vote on which columns they want and what else they'd like to see? What about it, readers? Does this click with anyone else or am I all wet?

I really do like Commodore World or I wouldn't have written this letter, I would have just cancelled. My subscription ends in two issues and I'm going to wait until then to decide whether or not to resubscribe. I hope it improves by then. If not I honestly can't see spending almost $30 a year for ads and information I knew in '87.

Tim George

While we're always saddened to lose a valued subscriber, we have to admit that we can't always be everything to everyone. Our decision to drop the Advanced Techniques column wasn't an easy one, but was a logical decision based a number reasons. Advanced Techniques has historically been written mostly in-house, because we've received very few articles from outside authors that would qualify for the column. In-house writing tends to delay release of issues, since it takes away from time normally devoted to layout and editing. Advanced Techniques was originally intended to deal primarily with machine language programming, and we'll be adding a new machine language column soon. Given these facts, it seemed reasonable to drop Advanced Techniques. We will, however, run occasional articles under that moniker in addition to the new ML column.

With respect to Hard Tips, there's going to be both 'heavy' and 'light' fare covered. We'll be striving to alternate more evenly between the two, but again, it wouldn't be possible to please everyone with every installment without doing two projects per issue; and we simply don't have the time or the room to spare for doing that.

Draw & Print

Dear CW,

I have only recently become one of your readers but have already put some of your tips to good use (i.e., the Hard Tips in Issue 6 on installing drive number switches on a Commodore 128D internal disk drive; it is working perfectly). I like your magazine and hope it is here for the long haul.

I have a few problems that I am hoping you can help me solve. The first is that even though I love my Commodore computer, there are a few hardware devices that IBM owners have that make me envious. The first is the drawing tablet they have for use in art programs. Drawing with my mouse on the graphic programs I use is like trying to bail out a sinking battleship with a teaspoon. Please don't get me wrong, a mouse is very good for pointing at icons on the GEOS desktop, but I don't think they were ever intended for use in serious drawing programs. Is there a drawing tablet for use with Commodore computers? If not, can an IBM model be made to work with our computers and software? If all else fails, is it possible that CMD might someday make a drawing tablet and software for my C-128D? I have started to use a graphic program called I-Paint, and I find it quite good but it still uses a mouse to draw with, and I think that this seriously limits its usefulness.

On another matter, I need to upgrade my printer. What would you suggest would be the best printer and printer interface combination? I use mostly GEOS, I-Paint, and Advanced Art Studio programs. I am willing to put as much money into it as needed to get quality printing results, but don't understand much about printer technology. So I could use all the help that I can get.

Thank you for one great magazine and for taking the time to read my letter.

James Logan Davis

Thanks for the compliments; we certainly plan to be around for the 'long haul'. On to your questions...

There definitely were at least two drawing tablets made for the 64/128, perhaps more. Probably the most popular of these was the Koala Pad. As you might guess, this came from the same folks who created the Koala graphics file format which has been so commonly used on the Commodore for years. The bad news is that none of devices have been made for years, and you'll rarely see them even in the used market. I watch many of the 'for sale' posts on a number of telecommunications networks, and I'd guess that I see a Koala Pad for sale about once a month. I've had very limited exposure to these devices myself, but I wasn't overly impressed with them on those occasions. I was reminded somewhat of the light pens I'd tried years ago... try as you might to draw a straight line or a circle, you generally got less than optimum results. Of course, this can't be blamed entirely on the input device... after all, we're dealing with a screen that has—by today's standards—relatively low resolution. Most 'dazzling' artwork you'll see on the 64 has in almost every case been created by careful pixel editing, though in some cases it may have been ported from some other type of computer and 'dithered' down into something that the Commodore can display well. Odds are slim that CMD will create a new drawing tablet or attempt to interface one from another platform. While such products might be desirable, they serve a rather small niche and would be expensive (consider that most drawing tablets on other platforms cost more than you probably paid for your computer).

Moving on to your question about printers, I'd recommend looking for a used Star NX-1000 Rainbow. I'm only guessing, but it seems like color is an important factor to you, based on the other comments in your letter. If you were only using GEOS, then a modern 24-pin color printer or color ink-jet printer would serve you well; but the other applications you mentioned (specifically the Advanced Art Studio) are less likely to work with these suggestions. As far as interfaces go, there's only one currently being manufactured that would be suitable for your specific needs: the MW-350, available from CMD, SSI, and possibly some other sources. Again, you may find something else in the used market, like the Xetec Super Graphix, which was probably one of the best interfaces for the price.

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COMMODORE TRIVIA

by Jim Brain

Welcome to another edition of Commodore Trivia. As many of you may know, these trivia questions and answers have been donated by me to the Commodore community at large. Unlike other articles in Commodore World, these trivia questions have been placed in the public domain. I ask only that the trivia questions remain intact and unchanged, and that my name and address appear somewhere so users can contact me. The trivia is also used for a contest I run on the Internet; contact me at the included address for more information. Because curiosity has the best of me, I always welcome a note or postcard detailing where the trivia goes. I always welcome new questions—provided they come with answers. Enjoy.

Jim Brain
Brain Innovations, Inc.
602 North Lemen
Fenton, MI 48430

COMMODORE TRIVIA #7 QUESTIONS

$060 When you turn on stock Commodore 16, how many bytes free does it report?

$061 How many does a stock Plus/4 report?

$062 What was the VIC-20's subtitle?

$063 What personality announced the birth of the Commodore 64 in Christmas advertisements?

$064 What was the name of the monitor program included in the Plus/4?

$065 How many sectors per track are there for tracks 1-17 on a 1541?

$066 There are two programs running in the Commodore single-6502 drives (1541,1571,1541 II,1581). What is the interpreter program called?

$067 How do you do a hard reset on a Plus/4 ?

$068 Where did the name "Commodore" come from?

$069 Chuck Peddle, designer of the 6502, left Commodore twice. Where did he go first?

$06A Where did he eventually go when he left for good?

$06B What does the Kernal routine at $FFD2 do in terms of function and what parameters get passed and returned?

$06C What Commodore drive has a hidden message?

$06D What computer was the first to have a hidden message?

$06E What was it and how did you get it to come up?

$06F What does NTSC stand for?

COMMODORE TRIVIA #6 ANSWERS

$050 The Commodore 1551 connected via the expansion port. Therefore, it was a parallel device, and could work at much faster speeds.

$051 Two, The second drive cable attached to the back of the first cable.

$052 The two drives were mapped into the Address space at $fec0 and $fef0 of the Plus/4 or C-16. The 6523 Triple Interface Adaptor chip is mapped in at these locations and has 8 registers each.

$053 This has two equally valid answers. On the Vic-20, each sound generator has a range of 3 octaves. However, all the sound generators together can range 5 octaves, since each sound generator is staggered one octave apart.

$054 The infamous Adam Osborne, of Osborne I fame.

$055 I neglected to note that the Commodore 64 packing box has underwent many changes. However, for quite a while, CBM used a blue box with many views of the 64, and a specification list on side of the box. On that spec list, it claims that the the 64 can have "256 independently controlled objects, 8 on one line." Why is this important? It gives us a clue that the VIC-II designers figured people would and could use the interrrupts on the VIC-II to change sprite pointers.

$056 The package was called "3+1".

$057 Lotus 1-2-3.

$058 Depending on whom you believe, the SX stands for two things. If you choose to believe Jack Tramiel, the SX stands for "sex", since Jack has been quoted as saying, "Business is like sex, You have to be involved". This is a plausible answer, as Jack usually picked the names of the computers. However, if you don't buy that, here is the marketing version. SX stands for Single Drive Executive, as the portable 64 was called the Executive 64. There was to have been a DX model, which would have had two drives. You decide.

$059 Bob Yannes, who also worked on one of the VIC prototypes, developed this chip.

$05A A whopping 2 kilobytes. If you plugged in the BASIC cartridge, memory dropped to .5 kilobyte or 512 bytes. No wonder CBM scrapped this one.

$05B William Shatner. Yes, Captain James T. Kirk himself did the ads. He was not, however, in uniform, since CBM did not have rights to Star Trek of any sort.

$05C Anchor Automation. Sometimes called the "Most Inexpensive Modem", the VICModem was designed to be sold for under $100 when most were $400 or more. The secret to the cost containment was the ability to use what we sometimes think of as a disadvantage of the User Port to the modem's advantage. The TTL level RS-232 signals did not need to be buffered before driving the modem, and the +5 volt power available through the User Port just was not available through normal RS-232 lines. Not having the already TTL level signals would have meant extra components that would have increased case size and cost, and not having the on-board power would have meant a power connector and power supply would need to be bundled. Being one of those people who used the first VICModem, I can tell you it was worth the hassle.

$05D RUN Magazine. As of right now, CMD has purchased the rights to RUN.

$05E (a) ivory, (b) chocolate brown, and (c) mustard.

$05F Bahamas. Doing so gave CBM a great tax break. With the tax rate in the Bahamas as low as 1%, more money could be kept from the governments.

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SPECIAL REPORT:
Commodore Assets Sold!

by Jason Compton, Editor of Amiga Report

April 21st, 1995 may not mean much to historians; but to millions of Commodore computer users worldwide, it meant the dawn of a new age.

On that day, in the United States Bankruptcy Court of New York, the vast bulk of the assets of Commodore International, Ltd. were auctioned off. The Bahamas based company controlled all of the patents, technology, and intellectual property of Commodore, as well as a substantial amount of the remaining inventory of Commodore parts and machines. The rest is held by semi-autonomous holding companies not directly answerable to Commodore International.

The Players

The technology of Commodore, most notably the Amiga line, had been courted for many months. Initially, interest was attributed to such companies as Samsung, Philips, and Amstrad, but their interest quickly waned. By the end of 1994, three major players were visible: Alex Amor, president of Creative Equipment International, the largest US distributor of Amigas and Amiga products; the management team of Commodore UK in the form of David Pleasance and Colin Proudfoot; and Escom AG, the second-largest PC clone maker in Germany.

As the months passed, Amor and the UK group each presented their views for the future. Pleasance had a monthly syndicated column in the Amiga magazines of Great Britain and used the winter World of Amiga show at Wembley Stadium to present his case to users and developers alike. Amor communicated often with users online, holding 5 online conferences that were put in print worldwide. Escom remained silent, and the best information available indicated that their primary interest was in the Commodore trade name—still highly valued in the German market.

Escom Makes Waves

Time passed without much resolution or event—and the value of the Commodore assets continued to plummet. By December, all remaining Commodore engineers had been laid off. In February and March, though, the pot started to boil. It was learned that Escom had obtained the Commodore trademarks—not from Commodore International, which claimed control of all Commodore marks—but from Commodore Germany, a company in liquidation itself. The sale was disputed and Escom was threatened with an injunction. As a compromise, Escom submitted a $5 million bid for Commodore International's assets, which would then make their acquisition of the German marks legitimate.

A formal agreement and legal code were established and a contract between Commodore International's trustees and Escom were signed in March, with an auction to be held on April 20th, at the offices of the liquidator's lawyers.

The Auction That Wasn't

The auction was expected to be a heated three-way contest between Escom, Amor, and the Pleasance/Proudfoot team. The outcome was much less dramatic, however. Two bids were submitted to challenge Escom's: one from Computer Connection, a California company, which was rejected for lack of a sufficient deposit. The other was submitted by Dell Computers with Alex Amor's backing. Dell's bid, while greater than Escom's $5 million, was rejected because it violated the liquidator's no-condition rule. Dell's bid hinged on a 30-day "review period" for the Commodore patents, to ensure their legal viability. Pleasance and Proudfoot did not bid and issued a statement of formal withdrawal later that day.

On To Bankruptcy Court

The following day Escom's bid went up for court approval. Dell attempted to challenge Escom by submitting a $15 million bid, which met with instant criticism from Escom, who claimed that their accepted bid was no longer subject to outside competition. The Commodore creditors seemed interested in Dell's offer, as it represented three times what Escom was willing to pay. Judge William Garrity, Jr. called a 3-hour recess to encourage the parties to sort out the issue. When court resumed, Escom had increased its bid to nearly $12 million, a figure acceptable to the Commodore creditors. The deal was approved. Roughly a week and a half later, the formality of Bahamian court approval was completed, and Escom paid the balance of the contract.

Escom Announces Plans

While Escom was virtually silent before the auction, in the weeks that followed they put out a flurry of press releases announcing their intentions for the cornucopia of technology they acquired. The key strategies involve restarting the Commodore 64 line for sale in Eastern Europe and China, producing the Amiga 1200, 4000, CD32, and 600 for worldwide sales, making use of the Commodore name for a line of PC and Mac clones, and licensing out the technology liberally. Indeed, at least two licenses have been announced, one to Tianjin Family-Issued Multimedia, a Chinese company and Escom's contract manufacturer, the other to Visual Information Services Corporation of the US. They have appointed Dr. Peter Kittel, a former Commodore Germany employee with many years of experience, as their head of engineering. Arguably one of the most important concerns—that of a North American distribution channel—has not been addressed by Escom as of yet, but newly manufactured product has been projected for September by Manfred Schmitt, President and majority owner of Escom.

Escom's European distribution plans include the use of their extensive chain of retail outlets and continued support of independent dealers. Their recent acquisition of the large Rumbelows chain of electronics stores in the United Kingdom has lead some to refer to them as the largest computer chain in Europe, with stores already established in several Continental countries.

Unresolved Issues

The dust has not fully settled yet. There is still the issue of a rather large amount of Commodore property stored in a Philippines warehouse under the direct control of a Netherlands-based Commodore holding company, which would greatly facilitate Escom's short-term operations but has not been sold yet. There also remains the issue, for what remains of Commodore International, to pay off its creditors as best it can, perhaps by investigating allegations of mismanagement. But that is now officially someone else's problem. At least for now, the legacy of Commodore has a new home in Heppenheim, Germany.

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ON THE HORIZON

COMMODORE AND COMPUTER INDUSTRY NEWS

Grapevine Group Successor Corporation Formed

The Grapevine Group, Inc., a long time supplier to the Commodore 64/128 market was forced to cease operations last year, as previously reported in Commodore World Issue 4. According to one of The Grapevine Group's principals, Mr. Joel Kornreich, "When Commodore announced their official Chapter 7 bankruptcy in April (1994), I let go most of my employees as sales had slowed considerably. Within the same month a large bank holding our line of credit for $350,000, not only would not renew the line of credit but demanded the money back within 24 hours."

Mr. Kornreich contends that when the Bank got wind of the fact that Commodore Business Machine had filed for voluntary liquidation, that it lost faith in the market and questioned his company's ability to continue operations and repay outstanding notes against their line of credit. As a result of this action by the bank, according to Mr. Kornreich, "we were fighting with the bank and things got progressively worse. The bank executed the UCC lien and froze our warehouse with all inventory, including equipment belonging to customers. This happened on August 26th (1994)! This was a court action and everything was sealed with lock and key. Shortly thereafter the bank obtained a court order to seize all corporate accounts and my personal accounts. They froze our ability to do any sales or return any merchandise to customers." According to Lexow, Berbit & Finkelstein, the law firm representing The Grapevine Group in this matter, Grapevine "relinquished control of its assets to [the bank] on August 26, 1994 when it agreed to give up access to its inventory. An attempted settlement of the matter was not successful."

Numerous questions have been posed to Commodore World Magazine concerning The Grapevine Group. Many of these inquires have been complaints that material shipped to Grapevine for repair had not been returned and that merchandise ordered had been billed, but was never received. Mr. Kornreich assures us that he intends to return all customer owned equipment and to the extent possible, he will ship items which were paid for and not shipped because of the seizure of his inventory. He added that these customers should contact him by calling (914) 578-619, or by writing to him at P.O. Box 660, Nanuet, NY 10954.

Recent letters to this magazine tend to support Mr. Kornreich's claim of assistance to those adversely affect by the demise of Grapevine. Mr. Thomas A. Hollinger writes, "last year I had the worst experience of all with Mailorder. I ordered four C64 motherboards from Grapevine for a total of over $200.00. That was in March 1994. I never received the boards. I called the Mid Hudson Better Business Bureau and filed a formal complaint. This was the second time I have done this. They couldn't help me and suggested I contact the small claims court in New York. Then one day a Commodore friend of mine gave me a copy of your magazine, Commodore World. There in black and white was Global, which is now Systems Repair Co. The article explained how Global was obtaining [Grapevine's inventory]. So I called and explained my dilemma. I spoke with a gentleman named Joel who I found out later was the man in charge. He was very helpful and wanted to assist in correcting Grapevine's failures. Since then Systems Repair has sent me two motherboards with a promise of two more later. I informed him that substitutions would be acceptable like power supplies and chips."

Mr. Kornreich is now involved with a new corporation which supplies parts for the Commodore 64/128 and Amiga. The name of this company is Paxtron Corporation, with offices at 28 Grove St., Spring Valley, New York 10977, telephone number (914) 578-6522 and FAX number (914) 624-3239.

Escom Announces New Company

Escom, the German-based company that recently acquired the rights to Commodore's assets, has announced that they will form a new company to produce and market the Commodore product lines. The following company name and address was provided by a new employee of the company:

Amiga Technologies, GmbH
Berliner Ring 89
D-64625, Bensheim
Germany

Commodore World Subscriber Sweepstakes

Winners of the *Commodore World Subscriber Sweepstakes* will be announced in the next issue of *Commodore World*. For those who didn't notice, the contest was extended to run through June 1. Originally we had announced ending the contest on May 1, but extended this date to cover some late-running advertisements in other publications.

Watch for the *Winner's Circle* in the next issue of *Commodore World* to see if you're one of the lucky winners. Winners will be drawn at random from all qualifying subscribers, and information on claiming your prize will appear with the winner information.

Lotto News From Lottoman

Lottoman has recently announced the availability of upgrades to its programs. The *Lottoman* program has been upgraded to version 2.2, and *Lottoman II* program has been revised to version 1.2. Lottoman states that there is no charge for these upgrades to registered owners, but a shipping charge of $3.00 is required to process the upgrade. The new versions, according to the company, will load your lottery number data much faster, and corrections have been made to some of the printing routines in the *Lottoman* program.

A new addition has also been made to the Lottoman family. Called *Lottoman Jr.*, the new program provides the ability to track and analyze daily pick 3 and pick 4 lottery games. *Lottoman Jr.* provides an easy-to-use menu-driven system that allows you to view the history and trends of these games, while providing you with valuable and strategic information either in screen windows or printed hard-copy. Up to 6000 games and 100 tickets can be stored in RAM for fast access, and the program comes supplied with

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a 36-page spiral-bound manual. The new program costs $19.95, plus $3.00 shipping, and was slated for release on May 1, 1995.

Finally, Lottoman has announced that phone support is now being offered. The number is (814) 236-7615. Customers are encouraged to call between the hours of 7:00-10:00 PM.

For more information, contact Lottoman at the number above, or write: Lottoman, P.O. Box 44, New Millport, PA 16861.

Assembly '95 Demo Competition

Assembly '95 will be held in the Helsinki Fair Centre, Finland's largest conference centrum, from August 10-13, 1995.

Several competitions are planned for various computer platforms including the Amiga, MS-DOS PC's, and Commodore 64's. Prizes are to be awarded for each competition, including both cash and merchandise.

Commodore 64 Competition General Rules:

- Only one contribution from each group/artist is accepted for each competition series.
- Contributions must be 100% finished before the deadline, because we will copy and spread all of them at the event. This is just to avoid final versions being released months or possibly even years after the event.
- The deadlines aren't flexible, so please deliver your contributions in time to avoid problems.
- Your contribution disks will not be returned.

C64 Demo Competition Rules:

- The demo will be run on a standard C64 with original 1541 drive and an Action Replay MK6 cartridge.
- Each demo will be shown for a maximum of 15 minutes.
- It's recommendable that you code your demo in such a manner that pressing space wouldn't be necessary to proceed. If, however, your demo should require any user interaction, a person from the contributing group should be present to run the demo.
- At least one person must be present from the contributing group. If the entry is not a group-release, then the coder must be present him/herself.

C64 Graphics Competition Rules:

- The picture must be an executable file.
- ALL graphic formats are accepted.
- Only the picture must be seen on the screen; no scrollers or other moving things are allowed. Background music is acceptable (although not recommended), but during the competition no-one will hear it (audio equipment will be turned off).
- Please try to give your picture some (sensible) name to avoid too many "un-named" pictures competing.
- The artist must be present at the competition.

C64 Music Competition Rules:

- The tune must be an executable file.
- Only your imagination's the limit; samples are of course accepted.
- Each tune will be played for maximum of 3 minutes. (This doesn't mean you have to cut the tune at 3 minutes sharp, though! Even if your tune won't be played for more than 3 minutes at the competition, people will play it longer at home).
- Please try to give your tune some (sensible) name to avoid too many "un-named" tunes competing.
- The artist must be present at the competition.

C64 Competition Prizes:

DEMO: 1st Place, $200.00; 2nd Place $100.00; 3rd Place $50.00.
GRAPHICS: 1st Place, $100.00; 2nd Place $50.00; 3rd Place $25.00.
MUSIC: 1st Place, $100.00; 2nd Place $50.00; 3rd Place $25.00.

All cash prizes will be paid in Finnish currency. Amounts may vary depending on exchange rate at the time of competition, and may be increased if attendance is better than expected.

Contacts:

The official C64 competition organizers are Deadbeat of The Sharks, Mysdee of The Sharks, and Hazor of Beyond Force. Prizes for the C64 competitions will be gathered from the entrance fees, so it is essential for all C64 attendees to contact these organizers. No mailing address has been provided, but you can contact Mysdee at his Internet address: mysti@stekt.oulu.fi.

Ticket information can be obtained by writing:

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Loadstar Compleats Another One...

Yes, Loadstar does it again. Loadstar has announce the publication of its fourth major product in the "COMPLEAT" series—*THE COMPLEAT MAURICE!* This is a compilation the 26 solitaire card games written by Maurice Jones, the acknowledged master of card game simulations for the C-64/128. There's even a brand new, never before published game called Boomerang.

The easy-to-use Loadstar-like menu system will take you through the evolution of card gaming on computer, starting with Maurice's early card game "models" and ending with the feature-filled programs that Loadstar subscribers look forward to every month. Each game has complete instructions and a personal message from the author himself, written specifically for this edition.

THE COMPLEAT MAURICE comes on two 5.25 inch disks or one 3.5 inch disk for only $20.00 postpaid! That's less than $1.00 a game! All the programs have been upgraded to work on any drive.

If you've got a C-64/128 friend, you can't beat *THE COMPLEAT MAURICE* as a gift that will be enjoyed over and over again.

C-64 Finds Planet Mercury?

Thanks go out to Fred Scott for sending us the AP news item he caught in the Schenectedy NY Daily Gazette on May 10 of this year. The article, titled "Flying telescope gives ecstatic scientist long-awaited view" detailed a recent mission of NASA's Kuiper Airborne Observatory. Reporter Paul Recer, reporting from the scene, detailed an account of how the aged C-141 jet captured pictures of the planet Mercury through its 1 meter telescope while soaring more than 41,000 feet above Nevada. At this altitude, the telescope can capture objects that can't be easily seen from the ground. Controlling the telescope and fine-tuning the received data was a Commodore 64. "It works," stated Fred Witteborn, a scientist directing operation of the instruments connected to the telescope. We bet it does.

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THE CONNECTION

NEWS FROM COMMODORE-RELATED VENDORS AND PUBLISHERS

the Underground

I wandered into a local software retailer the other day, and was amazed (as I always am) at the myriad of software titles available for that other computer platform. These software packages ran from the top of the ceiling down to the floor, as well as wrapping themselves around the customer with shelves and shelves of products for every taste. It made me wax nostalgic of the glory days when Commodore products shared a large part of stores such as this one.

Is software really that hard to come by these days? Some would say yes, and argue that one reason to upgrade is to get the new stuff that will never be seen on a Commodore monitor. I say no, however, and state that there is a lot of good 8-bit software out there. While the bulk of this software may not be new, much of it is undiscovered.

As most of us know, there are a handful of programmers who continue to do new and wonderful things with their machines. Some prefer to market their creations commercially, and receive decent exposure due to advertising and reviews in magazines such as this one (as well as the Underground, of course).

Some stick to the shareware concept, while others release their programs into the pubic domain for all to use. These are usually the easiest products to get a hold of. Shareware and PD items are readily available online through services such as GEnie and Delphi, as well as local BBSs, and even an FTP site or two.

One of the more underappreciated sources for great software is LOADSTAR and LOADSTAR 128 Quarterly. Softdisk pays authors generously for their programs, and has set a ridiculous standard for quality. I was pleasantly surprised when I first started receiving these disk magazines last year. Every issue is packed with utilities, games, articles, and everything else you expect from a high-class publication. All this on one (3.5") or two (5.25") ready-to-run disks.

A higher price seems to keep people from subscribing, but with new lower rates, you should reconsider. The new rates put each issue at about $5.82, which is a real

USER GROUP CONNECTION

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Looking for a Commodore user group in your area? User groups can help you solve problems, keep you informed of new products and events that might be of interest, and give you a chance to share your computing experiences with others who enjoy Commodore computing.

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deal when you see what you are getting. LOADSTAR is the only monthly Commodore publication remaining today, and it deserves more attention.

Some major distributors still carry a lot of Commodore titles. Most people reading this are aware of CMD's stash, as they print a listing in every issue. Another great source is Software Support International, which offers good prices and a large catalog, free upon request.

Used software is a treasure trove that many haven't discovered. I have found that used software vendors often carry titles that have been out of circulation, and cannot be found elsewhere. The only difference with used software is the weathered manuals, and the absence of a box, but the program is as good as new.

My favorite used software vendor is Bare Bones Software. They offer an extensive list of used titles upon request. You can call them at 1-800-638-1123 to get one.

Finally, searching the proverbial garage sales, classified ads, and even family members (take it easy!) may turn up a software treasure. A recently acquired some used stuff from my brother-in-law, and found some classic games (Choplifter, Mr. Do's Castle, and Beyond Zork) which I'm now hooked on.

Software developers made a ton of software for the Commodore line. While the new stuff is more obvious to us now because it's easier to keep track of, there is much we haven't seen. If we have a need, we should seek out these hidden treasures before we succumb to the myth that we have seen all this platform has to offer. I doubt anyone has.

- Scott Eggleston
Editor, the Underground

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TOP TIPS

WHY WE 'DO' THE WAY WE DO...

Egads! Our DO/WHILE/LOOP example program from last month certainly brought in some interesting responses from our readers. Before we get into those responses, here's that test program again:

```
100 REM DO LOOP SPEED TEST
110 I=1
120 TI$="000000"
130 DOWHILEI<10000:I=I+1:LOOP
140 T=TI
150 PRINTT
160 TI$="000000"
170 FORI=1TO10000:NEXT
180 T=TI
190 PRINTT
```

First cam this response from Bob Renaud:

Gentlebeings:

The issue #7 TOP TIPS item, "To DO or Not to DO", made unfair comparisons between DO/WHILE/LOOP and FOR/NEXT.

Point 1: line 130 puts numeric values 1 and 10000 within the loop. These are ASCII values, and need to be converted. As it is written, on my C128 in FAST mode, the line required 3184 jiffies to execute.

Let's make a couple of changes:

```
110 I=1:J=1:K=10000
130 DO WHILE I<K:I=I+J:LOOP
```

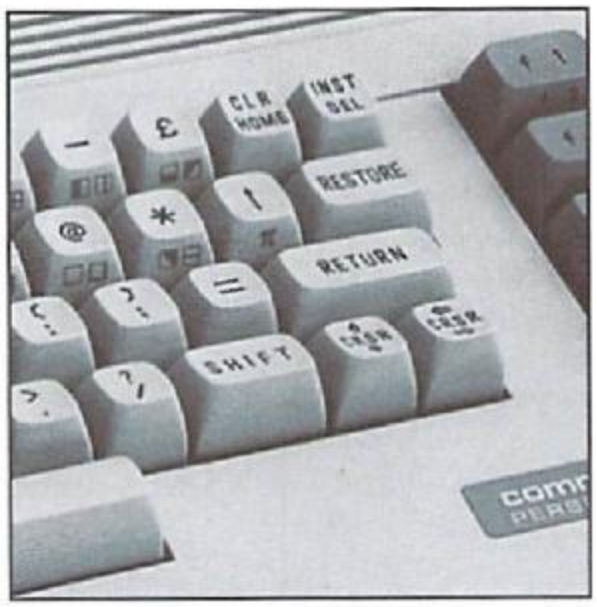
Getting the ASCII values out of the loop by using 'J' and 'X' reduced execution time to 1949 jiffies, 1.63 times faster.

Point 2: The FOR/NEXT loop in line 170 contains no addition operation, so obviously it will scream along. It requires 442 jiffies to execute (difference of 4.56 to 1 vs. the faster DO loop, not the 7.2 to 1 of the original line 130).

Let's make the comparison totally fair by rewriting line 170:

```
170 CLR:I=1:J=1:K=1:FORI=1TO
10000:J=J+X:NEXT
```

Now line 170 required 1440 jiffies to execute (note: FOR~NEXT reads 10000 only once). Ergo, the FOR/NEXT loop that's fairly compared to the efficient DO loop is only 1.38 times faster.



Conclusion: for loops such as FORI=1T010000:NEXT which serve no purpose other than as a time delay, the FOR/NEXT structure is faster. But, when math or logic is placed inside the loop, the difference in speed between FOR/NEXT and DO/WHILE/LOOP is insignificant. And, the flexibility of the DO structures far exceeds that of FOR/NEXT, e.g., DO WHILE A=B(X) AND C<N*4...

Please do caution your authors to compare apples to apples in writing such dissertations. Danke.

Then came the following from Bob Buragas:

Your latest issue (V2/N2) has a real DO/DO of a tip. It finally confirms that BASIC 2.0 can do nothing 7 times faster than BASIC 7.0.

The DO loop is infinite and needs a conditional statement to exit. FOR/NEXT builds in a conditional with the statement TO.

A fair test would make the FOR statement infinite and then use an IF/THEN to exit. A test which includes a PRINT I in each loop drops the speed differential from 700% to 3%.

But, so what? DO is an infinite loop. FOR/NEXT can't be. DO WHILE waits for collateral events which can be difficult to program with FOR/IF/NEXT.

Since FOR/NEXT is also a part of BASIC 7.0, DO obviously wasn't intended to replace a simple FOR/NEXT loop. Besides, jumping out of FOR/NEXT, without closing the loop, can cause problems.

New commands are added to languages to do complex functions that are difficult, or time-consuming, using the older and less powerful ones.

Anyways, comparing apples and Commodores only proves you have two of something.

As long as I'm being picky, why lines 140 and 180 in DO? Converting TI to T and then printing T is redundant when you can print TI. Talking about ways to enhance speed!

I like the magazine. These tips gave me a much needed laugh.

Okay... let me clear up a couple of things. Both of these readers want me to make the test 'fair' by adding additional elements to the FOR/NEXT loop. That misses the point. If you want to see if a Porche is faster than a Volkswagen, you don't change the engine in a Porche to something smaller because it wouldn't be 'fair' to compare the two otherwise.

But there were indeed some valid points made on how DO could be optimized by the use of variables in place of straight numbers. The end result was the same, though... for a straight delay—which is clearly what we were testing—there's no sense replacing FOR/NEXT with any form of DO.

One more point. Since the program was test of how long each of these loops take, assigning TI to T was done because it takes less time than a print statement; thus adding less 'extra' time for instructions used to perform the test.

We Need Your Top Tips!

Each issue we'll print the very best tips we receive from our readers. Send your tips on using and programming your Commodore 64 or 128 to:

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Just For Starters

by Steve Vander Ark

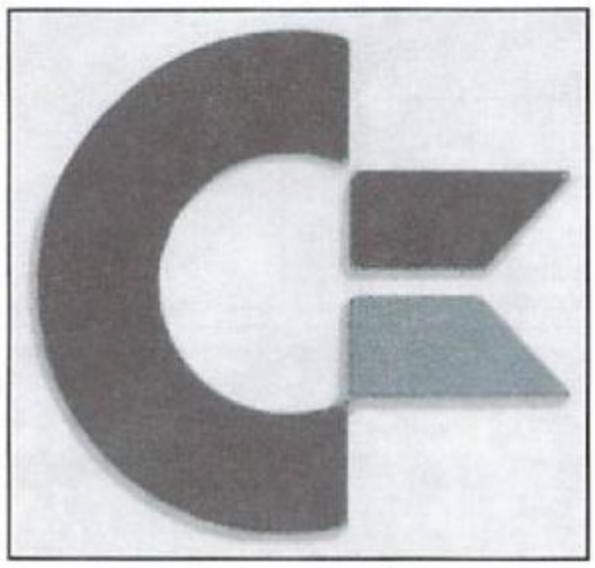
MORE COMMODORE BASICS FOR THE BEGINNER

After reading my last "Just For Starters" column, a friend of mine asked me a good question. I had mentioned that in order to find out the correct commands needed to format a disk, I had logged onto GEnie and asked around. My friend wondered how, if I didn't have my manual around, I manage to format disks and do all those other disk-related chores. Did I use that "wedge" program I talked about or maybe JiffyDOS?

The truth of the matter is that I don't use either JiffyDOS or the DOS wedge program that comes with the Commodore drives. I use program called GEOS which makes all those kinds of tasks ridiculously easy. GEOS is far more than just a DOS enhancer or a quick way to format a disk, though, and that's why it gets its own column in this magazine, which I also write. GEOS is a system which lets you do all your computing by moving a little arrow around on the screen to "point-and-click" your choices and commands. To format a disk using GEOS, you just point to the command "format" and click on it; GEOS takes it from there. All your disk activities, from moving files to erasing disks, are that simple with GEOS. If you think that this kind of a working environment would be your cup of tea, I suggest that you pick up some back issues of this magazine. In particular, check out issue number five, which contains a series of articles giving a beginner's-eye view of GEOS.

Experts On Call

You'll notice also that I said in the last issue that when I had a question about the Commodore computers and disk drives, I turned to something called GEnie. In case you've never heard of GEnie, at least not outside of a Sixties sitcom or a Disney



movie, let me take a moment to fill you in. Believe me, if you're a beginner with questions, GEnie is very much worth finding out about. It's a "telecommunications service," which means that you can call it up using your telephone. You don't call up a telecommunications service yourself, though; your computer has to do it. And in order for *that* to happen, you need a gizmo called a modem. A modem plugs into the back of your computer, often into the "user port," which is the wide connector to the right if you are looking at the back of your machine. A phone line gets plugged into the modem, and from then on your computer can make phone calls. Sounds simple, right? It is.

Wait a second, though, you do need one thing more: a "terminal" program. That's a particular type of program which knows how to use your modem to make calls. The phone numbers you'll want your terminal program to call are ones which will be answered by another computer, in which case the two can start chatting back and forth. That kind of electronic talk is called telecommunications, and a company you call up that way is called a telecommunications service. There are a number of such services available for a monthly fee, and GEnie is one of them. It's not the biggest one (CompuServe takes the prize there), nor is it the only one accessible to Commodore programs; but for Commodore users, it's the best one, in my humble opinion. That's because the Commodore support area on GEnie has a particularly impressive number of big-name power users as regular members. Creative Micro Designs, probably the number one source of Commodore hardware and software in the world, maintains an active presence there. There are folks available to chat with live every single night, people who know the answers to questions like what to type in to format a disk.

As you explore your Commodore computer and try out things, you will undoubtedly have plenty of questions and run into problems you can't solve. Having an account on GEnie is like having a couple of friendly experts hanging around every night to answer those questions and help you solve those problems. You might even run into me there.

Just a side note before I get talking about variables and text colors: my screen name on GEnie has changed and along with it my preferred Internet address. E-mail me at STEVE.VA on GEnie or STEVE.VA@GENIE.GEIS.COM via the Internet. My America OnLine (another service I use) address is still SteveVArk.

Make Your Choice

Last issue in this column, we talked about the commands PEEK and POKE. We used PEEK to find out what number was stored in a particular

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memory locations and we used POKE to put a new number there. The memory location we chose for this was 646, which is the spot where the Commodore stores the color number of the text on the screen. We found out that when we POKE a new number into location 646, we changed the text color. We also talked a little bit about variables. I promised that this issue we would write a program using some of these ideas, and that the power of using variables in programming would become more obvious.

So, let's give it a try. Remember that we are working in 64 mode, which means that if you are using a 64 you're all set. If you're using a 128, switch to 64 mode by typing GO64 and answering Y for yes when it asks if you mean it.

The first step in writing a program is to plan. We need to decide just what exactly we want to have happen before we can figure out how best to write the BASIC commands. In this case, we're going to write a program that changes the color of the text on the screen to whichever color the user wishes. In order to do this, we'll have to provide some way for the user to give a number to the program, which will then be POKEd into memory location 646. After this is finished, the program can quit. If the user wants to change the color again, they can run the program again.

Wait a second, though. What if we let the user have another chance to enter a number immediately, so they don't have to re-run the program. That would make our program more "user friendly," and any program should be as user-friendly as possible.

So here's what we will expect to see:

(1) the user is asked to enter a number between 0 and 15, since those are the color numbers on a Commodore 64
(2) the program takes that number and POKEs it into memory location 646
(3) when that happens, the text color on the screen will change automatically
(4) the program jumps back to step 1 and asks for another number

In order to do this, we'll need to use some new commands. This whole business of asking the user for input (in this case a number) and then doing something with that information, is very important. After all, for a program to be of any use at all, it has to be able to communicate with the user. We'll do this using the BASIC command INPUT, which is used to (yes, you guessed it) get input from the user. We'll make our first line the input line, the one which asks the user for a number. The INPUT command in BASIC includes a helpful ability to ask questions for us as well as get the answer. Take a look at the following program line and you'll see where I typed the question right there along with the command.

```
10 INPUT"PLEASE ENTER A
NUMBER";X
```

The question is written inside quotation marks, as you can see, and it is followed by a semicolon and a letter X. That X is our variable, just like I talked about last issue. We'll use it to stand for whichever number the user chooses. If you think about it for a moment, you'll see that we'd need something like this because that value could be different each time we use the program. By calling that number X we can refer to it wherever we need to in our commands and it will always be the right number. BASIC automatically assigns the number entered to the variable X because we tacked the X onto the command after that semi-colon.

Go ahead and run this program now (type RUN and press RETURN). You'll see our question appear on the screen with a nice question mark in place at the end (which the computer supplied, you'll notice). Then the computer just sits there, waiting for an answer. Pretty slick, eh? Try typing in a number and pressing RETURN. Nothing really happens, of course, since we haven't written any more commands, but we're on our way.

According to our plan, once the number has been entered, the program should POKE it into memory location 646. We can copy that line right from the last issue, pretty much. This time, though, we'll POKE the variable X. Our second line looks like this, then:

```
20 POKE 646,X
```

See how the variable helps? No matter which number is entered, this line will work. Now try running the program so far and you'll see that you can very easily change the color of the text. When you've done so, the program stops. Run it again and you can change colors again. You can do this over and over again, trying out any number you wish. Of course, if you enter the number 6, the text seems to disappear since it is the same color as the background. You'll have to run the program again blind to change the color back to something you can see.

Okay, so far so good. Now, according to our plan, we want the program to go back to the beginning and ask for another number. That would make it so you don't have to re-run the program each time. We'll do this with another very useful BASIC command: GOTO. GOTO tells the program to "go to" another program line. In this case, we want to jump back to line number 10, where we asked the user for a number. Here's how that will work:

```
30 GOTO 10
```

When the program gets to line 30, then, it will jump back to line 10 and do whatever that line tells it to do, which is to ask for a number.

Checking back with our initial plan, it would seem like we're done. The program works just fine. We do have one small problem, however. How do we stop? There's no way to tell the program that we're through and would like to quit. For now you can use the keyboard method of stopping a program, which is to press the RESTORE key on the right side of the keyboard at the same time as the key that has RUN and STOP on it. This doesn't erase your program, it just breaks out of it and returns you to a clear screen and a prompt. You can now type RUN and press RETURN to keep experimenting. But next issue we'll work on ways of quitting a program with just a little more style.

You might want to take a look at your finished program. You can do this by typing LIST and pressing RETURN. You'll see all three lines listed there. You might also want to add lines to the ones we have. You can do this quite simply by typing a line number and the new commands on any blank line on the screen and then pressing RETURN. The line you just typed is added to the program. For example, let's add a line that tells the user the name of the program. We want this to happen once only, before the program actually gets rolling. Since our program starts with line number 10, we'll have to add our line before that. We'll make it line number 5. (The reason we use line numbers like 10, 20, and so on, is that it give us room to add lines when we need to.)

We'll use the PRINT command for this, since it lets us put text on the screen. Here's the line:

```
5 PRINT "TEXT COLOR CHANGER"
```

Now when we RUN the program, we'll see TEXT COLOR CHANGER on the screen before our input question appears.

Next issue we'll look a little closer at our program and add a few refinements. Meanwhile, try adding a few lines that will let the user change some other colors on our screen. Here are a few memory locations you might find useful: the background color is stored in location 53281, the color of the border around the screen is stored in location 53280. Don't be afraid to try things. If worse comes to worst, just RUN/STOP-RESTORE your way out and try again.

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Foreign Exchange

By Joseph Gaudl

COMPUTER WARS

Europe has always been the scene of great wars. In the midst of European-wide "celebrations" marking the 50th anniversary of VE day, Europeans continue to wage war with each other in the Balkans. Every world history book contains enough proof to back up the claim that the nations of Europe simply can't live together in peace and harmony any longer than a century. Greed, distrust and in some cases down right hate have thrown this continent time and time again into brutal conflict. Years ago, *Sports Illustrated* warned Americans coming to Europe to visit the Olympics to be careful of making certain "hand gestures" on the German autobahn. It could cost you your life! Dissension and war seem to be part of the European mentality and therefore its destiny.

The European computer scene is also not without its confrontations. Two years ago a blow-up within the ranks of the major Commodore computer club in Austria led to a irreconcilable split. Tempers flared and obscenities were exchanged as the combatants almost came to blows. Computer buddies became enemies overnight and grown men turned childishly sinister. A once strong and unified Commodore User Group almost lost its effectiveness as more time was put into name calling and threats than into serving and helping each other.

Greed has taken its toll on one of the largest Commodore clubs in Europe. What started out as a user club was changed into a company due to the size of the group and current laws. The leadership of the club quickly learned that a club of this size could bring in a rather handsome

cash flow and the emphasis gradually turned from membership support to profit. Objections from the club's ranks were viewed as destructive and immediately followed with threats of expulsion. The club's bosses ventured into one business transaction which almost ended in a fiasco. A program was burned onto a chip and then sold to club members WITHOUT the permission of those holding the copyrights to the program. Thousands of dollars in court fees had to be paid by the club until an out of court settlement was finally reached. Many club members questioned the sanity of their leaders and balked at their refusal to reveal the amount of the court fees. Some regional groups finally pulled away from the main group and started their own user service groups. This raised the ire of the bosses to the extent that they now are attempting to take legal action against the seceders.

Wars are being fought on line as well. The German equivalent to GEnie, Q-Link or possibly CompuServe is called BTX (Bildschirmtext). This is the place to be if you want to get something off your chest or thrown at you! BTX is an excellent on line service for Commodore users needing help, but the forums and mail boxes can get rough. As long as you spice your words with enough of those emoticons, you can get away with practically anything! If it should get a little to personal, you'll probably hear from someone's attorney. European courts are literally filled with defamation cases, some no doubt as a result of on-line insults.

And then there's the German company that violated international copyright laws. When confronted with their violation, the German company simply went on the offensive, drew a line in the sand and dared the violated company to cross it and try to stop them. The guilty party's insolence came to light when, in speaking with a representative of the other company, they expressed their lack of fear of the violated company and readiness to fight the battle in international courts.

It would be wrong to assume that the European computer scene is dominated by war mongrels. Most of the folks I know personally are not of this stripe. I've spoken to them about this problem and they share my concern and agree that the situation must change. I am involved with computer clubs that are very much international and also very harmonious. The computer—especially the C-64—has helped bridge gaps between languages, creeds and religions as immediate friendships have been made over keyboards and sitting in front of monitors. It has been my privilege and pleasure to introduce "seekers" into a fellowship of concerned computer freaks who have welcomed the newcomer with open arms and strengthened themselves thereby. There just needs to be more of it here.

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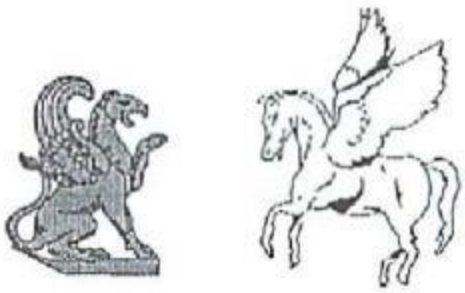

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COMMODORE WORLD'S GUIDE TO RAM EXPANSION

by Gene Barker

In the last five years, RAM devices have played a major role in the development of our Commodore 8-bit systems. They have given us exciting new abilities. Programs such as GEOS, BASIC 8, CS-DOS, Maverick, Pocket Writer and many others provide irrefutable evidence of this. And there are even further abilities yet to be fully explored.

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New releases such as Mad Man's CKit 94, Craig Bruce's ACE operating system, and others are still coming at us, pushing our capabilities a little further. There is no doubt that the future of Commodore 8-bit computing involves the further utilization of these powerful RAM devices.

The question is, "Do you need a RAM device?" In this feature we provide you with the facts you need to answer this question for yourself. GEOS users will find Maurice Randall's article on RAM devices from the GEOS perspective (elsewhere in this issue) especially helpful.

RAM Device Types

For convenience sake, I've broken down the available RAM devices discussed in this article into three types:

- Ram Expansion Units (REU's): CLD's Super 1750 Clone and Commodore's 17xx series.
- Memory Expansion Units (MEU's): PPI's BBGRAM and Berkeley Softworks GEORAM.
- Virtual Storage Devices (VSD's) — CMD's RAMLink and PPI's RAMDrive.

REU and MEU cartridges add RAM to your Commodore indirectly, requiring the use of specialized software. REU's and MEU's differ somewhat in the ways in which software must access the expansion RAM. Consequently, software written for an REU will not work with the MEU and vice versa. REU's feature faster RAM access and greater non-GEOS software support. While today's MEU's feature greater RAM capacity and battery backup. Both REU's and MEU's feature strong GEOS support.

VSD cartridges add RAM to your Commodore both directly and indirectly. Like REU's and MEU's, VSD cartridges allow the use of expanded RAM through specialized software. However, the strength of VSD's lie in their direct use as Commodore compatible disk drives. The benefit here is software need not be specially written in order to take advantage of the cartridges. A VSD cartridge should be viewed as a FAST disk drive with REU capabilities. Additionally, VSD's feature excellent GEOS support.

Below we examine each of these different RAM devices in more detail. To conserve space, only RAM devices which remain commercially available have been included.

RAM Device Terms

RAM — Random Access Memory: This is memory that the computer uses for storing and retrieving information. However, the information in this memory is lost when the chips are deprived of power.

ROM — Read Only Memory: As its acronym suggests, this is memory that the computer uses for retrieving information only. The information in this memory is not effected by a loss of power and can not be changed. For example, Commodore BASIC is implemented in ROM chips.

SIMM — Single Inline Memory Module: A small card containing a great deal of RAM. The capacities available for Commodore use include the 1Meg and 4Meg versions.

DMA — Direct Memory Access: This is the method which the REU uses to transfer memory back and forth between the computer and itself.

MEU — Memory Expansion Unit: This is a cartridge that plugs into the expansion port of the computer, providing the computer with additional memory; most notably the BBGRAM and GEORAM products.

REU — Ram Expansion Unit: This is a cartridge that plugs into the expansion port of the computer, providing the computer with additional memory and featuring DMA; most notably the Super 1750 Clone and Commodore's 17xx series.

VSD — Virtual Storage Device: This is a cartridge that plugs into the expansion port of the computer and uses its RAM as an extremely fast disk drive; notably the RAMLink and RAMDrive units.

Note: The terms cartridge port and expansion port are used interchangeably throughout this article. They are the one in the same.

CLD's Super 1750 Clone (REU)

Available from SSI, the Super 1750 Clone is a compact cartridge, roughly a quarter of the size and weight of the Commodore 1750. Due to its low power consumption, the Clone does not require the use of a heavy duty power supply when used with a Commodore 64 as does its big brother. The design of the Clone provides for a secure connection to your computer's cartridge port or cartridge port expander (a cartridge port expander allows more than one cartridge to connect to the computer at one time).

As its name suggests, the Clone operates in a manner identical to the Commodore 1750; it contains the same amount of memory (512K), and is 100% compatible with all software designed for the 1750. The Clone includes a utility disk which includes demonstration, RAMDOS, and diagnostic programs. The demonstration programs highlight the Clone's speed by rapidly copying images from expansion to video memory (resulting in smooth animation that would be impossible otherwise). The RAMDOS programs allow you to use the Clone as a disk drive. However, RAMDOS must be installed before it can be used AND it requires a small portion of the computer's memory to operate. The diagnostic programs perform extensive tests on the Clone to insure that it's operating correctly.

It is important to note that the Clone will only be of use to you if you have software that can take advantage of it. With the right software you may find the Clone to be invaluable. Examples: REU aware word processors can edit thousands of lines instead of hundreds, copiers can copy 1541 disks in one pass instead of three or more, and

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terminal (communications) programs can have 512K buffers instead of 32K ones.

PPI's BBGRAM (MEU)

Available from LynnCarthy Industries (dieHard) or direct from PPI, the BBGRAM units come in capacities of 512K, 1Meg, and 2Meg. The BBGRAM is a long cartridge (about an inch longer than a standard one) that plugs into the expansion port of your computer. The unit is about half the size and weight of its big brother the Berkeley Softworks' GEORAM. The BBGRAM features two LED's: a red battery low indicator and a green activity indicator. There is also a disable switch for use with non-GEOS applications. The unit includes a four D-Cell battery holder for battery backup and a small nine volt power supply. Both of these plug nicely into the side of the BBGRAM.

The BBGRAM operates in a manner identical to Berkeley Softworks' GEORAM and is 100% compatible with all software designed for the GEORAM. Where BBGRAM differs from GEORAM is its ability to retain data when the

computer is shut down via the power supply and battery backup. The unit is shipped with a utility disk which includes a BBGRAM tester, a few diagnostic programs, and a number of GEOS support utilities.

At this time, the BBGRAM unit is primarily for use with GEOS (please see Maurice Randall's article for more information).

CMD's RAMLink (VSD)

Available from CMD, the RAMLink is a large cartridge that plugs into the expansion port of your computer. On top of the RAMLink there are two separate cartridge ports. The first is a PASS-THRU port which allows the use of other cartridges with the RAMLink. The second is a RAM port which provides a protected DOS interface for most popular REU and MEU devices (including all of those mentioned in this feature). Optionally, the RAMLink can be equipped with a RAMCard which allows the installation of up to 16 Megabytes of RAM for the DOS interface. Additionally, a Real Time Clock can be added to the RAMCard which will time and date stamp files stored on the RAMLink. The RAMLink has three buttons: two swap buttons which allow the RAMLink to switch to device number eight or nine, and a system reset button. The RAMLink also has two switches: the direct switch which allows software to use the REU or MEU in the RAM port directly, and a

RAMLink disable switch. In the back of the RAMLink unit rests a parallel port, offering CMD HD Series hard drive owners faster access. The RAMLink comes standard with a small power supply and has a battery backup option. Both of these plug nicely into the back of the cartridge. And finally, the RAMLink features a number of LED's to reflect its current state.

RAM Device Features

	1750 Clone	BBGRAM	RAMLink	RAMDrive
Minimum RAM	512K	512K	0K	512K
Maximum RAM	512K	2Meg	16Meg	2Meg
Power Supply	NO	(a)	YES	YES
Battery Backup	(b)	YES	YES	YES
DMA Support	YES	NO	(c)	(c)
Pass-Thru Port	NO	NO	YES	NO
Parallel Port	NO	NO	YES	NO
REU/MEU Interface	NO	NO	YES	(d)
DOS Interface	(e)	NO	YES	YES
Real Time Clock	NO	NO	YES	NO
GEOS Support	YES	YES	YES	YES

LEGEND

(a)Use of the power supply is optional (unit will lose data when computer is shut down)
(b)Can be attained with the purchase of a BBU (Battery Backup Unit) from PPI
(c)Only when used in conjunction with a REU and only for REU memory access
(d)Can use a REU when used with a cartridge port expander
(e)Must be installed via software and requires computer memory

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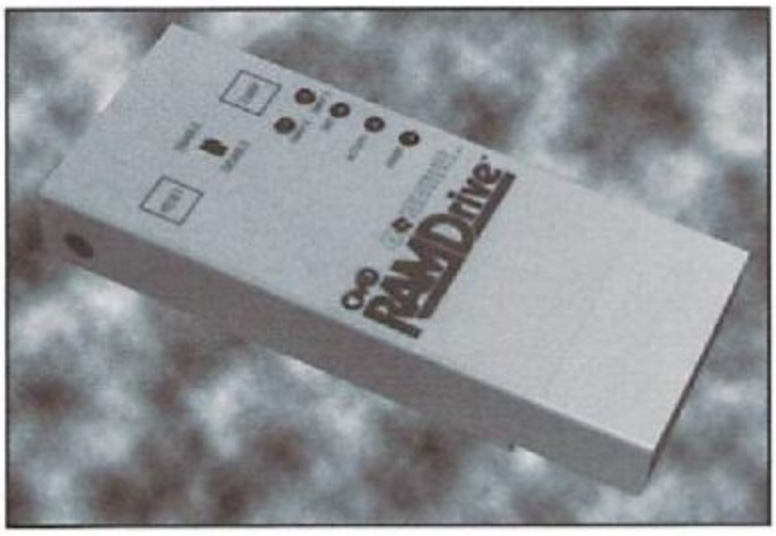
It would be misleading to label the RAMLink as just a RAM device. The RAMLink is a DOS interface for REU's, MEU's, SIMM's (memory modules), CMD hard drives, and JiffyDOS equipped disk drives. This DOS interface is completely transparent to your computer. The memory found in the RAMLink (REU/MEU/SIMM memory) appears to your computer as a CMD hard drive with all of its features and benefits. Since the drive storage is in RAM, disk access is almost instantaneous. The RAMLink utilities disk includes all of the programs you need to take advantage of the unit including file and disk copiers, custom setup and diagnostic utilities, and a number of GEOS utilities.

In a nut-shell, the RAMLink is the equivalent of adding a REU/MEU interface, parallel interface, JiffyDOS, and a fast hard drive to your system. Additionally, most software will operate on the RAMLink, seeing RAMLink as a disk drive.

PPI's RAMDrive (VSD)

Available from PPI, RAMDrive cartridges come in fixed capacities of 512K, 1Meg, and 2Meg. The RAMDrive is a long cartridge (about twice the length of a standard one) that plugs into the expansion port of your computer. The unit has two buttons: a swap button which allows the RAMDrive to switch to device number eight or nine, and a system reset button. The RAMDrive also features a disable switch. The unit comes standard with a small power supply which plugs nicely into the back of the cartridge. For portability



and blackout protection, the RAMDrive features internal rechargeable nicad batteries. The unit features CMD's transparent DOS interface, and with the use of a cartridge port expander can take advantage of REU's. Like the RAMLink, the RAMDrive features a number of LED's to reflect its current state.

The RAMDrive is a the functional equivalent of a battery-backed RAMLink without the cartridge ports, parallel interface, and 16Meg RAM capacity. Unlike RAMLink, RAMDrive's DOS is loaded into a portion of the RAM itself, allowing for simple DOS upgrading (RAMLink comes with its DOS in ROM).

The main advantage of a RAMDrive lies in its portability; due to its compact design, it's fairly easy to move from computer to computer. The RAMDrive includes a disk containing the same set of utilities as does the RAMLink (with small changes to account for the differences in the two). Please see the RAMLink section for more information.

The RAMDrive is the equivalent of adding JiffyDOS and a fast hard drive to your system. Like the RAMLink, most software will operate on the RAMDrive in some form or another.

Recommendations

If you only use your Commodore occasionally, for playing games, or learning BASIC programming, hold off on purchasing a RAM unit until your needs grow.

If you use your Commodore primarily for word processing, telecommunications, or copying disks, you should seriously consider the addition of a Super 1750 Clone. The speed and buffer advantages of using a Clone can be breathtaking.

If you primarily use GEOS you have a number of options. First, you should purchase some sort of RAM device; GEOS is simply more efficient and less difficult to use when a RAM device is added. The Clone is fast and has some limited capabilities outside of GEOS. The BBGRAM offers battery backup and a higher RAM capacity. While the RAMLink and RAMDrive offer battery backup, high RAM capacity, and room to grow in the future. All of these devices offer excellent GEOS support. The best advice is to use the RAM Device Feature Chart and choose the device which best fits your particular system. It's a tough call.

If you are a software developer, the RAMLink is the best testing tool you can buy period. After the purchase of a hard drive get a RAMLink. When properly used it can easily cut your development time in half—or more. Additionally, software support for CMD devices has become the standard as of late. And while RAMLink is probably the best RAM devices for a developer, I'd suggest going a bit further... get a 1750 Super Clone as well, and plug this into the RAMLink. The RAM in the Super Clone will be accessed by RAMLink even faster than RAMLink's own internal RAM (due to the DMA capabilities of the Clone). You'll also be able to use and develop software specifically for REU's.

RAM Device Sources

Creative Micro Designs, Inc.
(RAMLink)
P.O. Box 646
East Longmeadow, MA 01028
(800) 638-3263 Orders
(413) 525-0023 Info

LynnCarthy Industries, Inc.
(PPI BBGRAM)
816 West Bannock St.
Suite 502
Boise, ID 83702-5850
(208) 383-0300 Orders
(208) 383-0300 Info

Performance Peripherals, Inc.
(RAMDrive, BBGRAM, BBU)
5 Upper Loudon Rd.
Loudonville, NY 12211
(518) 436-0485 Orders
(518) 436-0485 Info

Software Support International
(CLD Super 1750 Clone)
2700 N.E. Andresen Rd.
Suite A-10
Vancover, WA 98661
(800) 356-1179 Orders
(206) 695-1393 Info

If you use your Commodore extensively for a variety of uses, you should consider the purchase of a RAMLink or RAMDrive. Either device will have an immediate impact on your system. A RAMLink or RAMDrive will make your Commodore drives seem like they're standing still—the speed literally has to be seen to be believed.

If you decide to purchase a BBGRAM or RAMDrive, be sure to get the 2Meg versions. These devices are not user expandable. The price difference between the 512K and 2Meg versions is less than a $100. You will not be disappointed.

If you decide to purchase a RAMLink be sure to include the RAMCard option with at least 1Meg of memory. This way, you can add SIMM chips for more memory as your needs grow.

Before considering the purchase of any of these RAM devices, though, be sure to investigate the software issue. Will this device work with my favorite word processor? Does my copy program recognize this device? What additional programs will I need to use this device? Use the RAM Device Feature Chart to help you identify the best device for your system.

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WHAT YOU SHOULD KNOW ABOUT

GEOS

&

RAM Expansion

by Maurice Randall

If you've never used any form of RAM expansion device with GEOS, I would guess that you might not be a serious user of GEOS. Using GEOS is just like using a bigger and more powerful computer, and everyone knows that they need all the RAM they can get!

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Way Back When...

GEOS started out as a system that would use just one or two disk drives. And those drives had to be 1541's. This made things easy. GEOS has an area in memory set aside for software to reside that provides routines for speeding up the disk access. These routines are commonly known as the GEOS Disk Turbo routines. Combined together, they are also referred to as a disk driver. Without the Disk Turbo routines, the 1541 would be way too slow since GEOS requires a great deal of disk activity. With both available disk drives being the same type (1541's), the same disk driver could be used to control both drives.

As GEOS developed, the 1571 and 1581 drives came into play. Different disk drivers were needed to control these drives. The problem was that there was only enough room in memory to hold one disk driver; GEOS needs the rest of available memory for the remainder of the operating system, system variables, the printer driver, the input driver, plus room for applications to use.

As GEOS evolved, the CONFIGURE program was developed to fetch the needed disk driver into memory whenever the user wanted access to a different drive. Unfortunately, only the Desktop itself was written to work with CONFIGURE; applications such as geoWrite could not access the second drive if it was of a different type requiring a different driver. So only one drive was of any use while using GEOS application programs. This is still the case, by the way, for GEOS users lacking RAM expansion.

Enter RAM Expansion

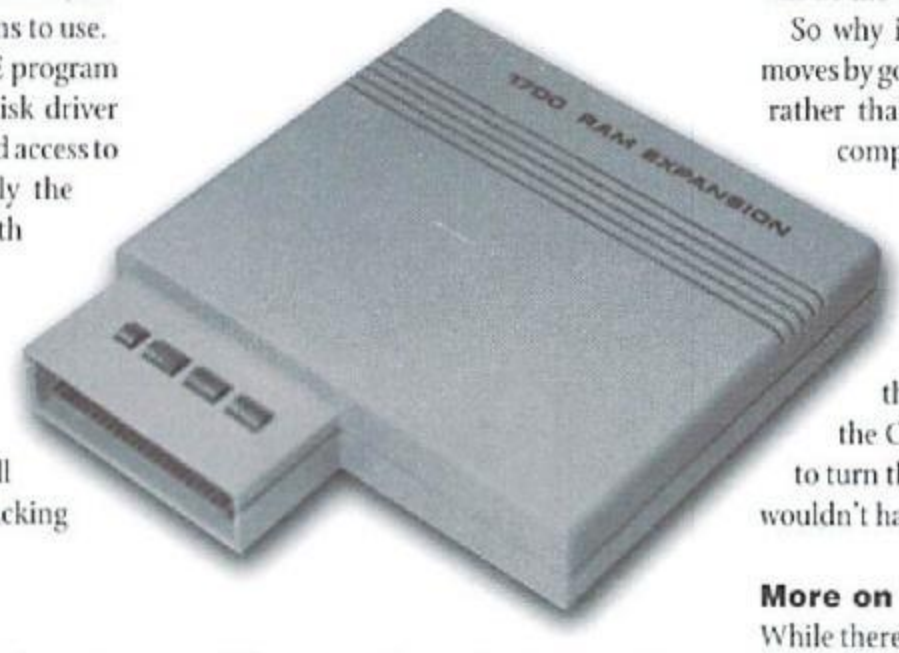
GEOS really began to take off when the Commodore 17xx series of RAM expansion devices were incorporated into the system. This made a huge difference—in more ways than one.

When GEOS boots up on a RAM expanded system, CONFIGURE checks to see which disk drives are being used, and promptly loads the disk drivers required for these drives into the RAM expander. Thus, when an application wants to access a different drive, the operating system itself brings the appropriate disk driver into memory from the RAM expander. Under these conditions, CONFIGURE is now only needed during the initial bootup.

With the additional RAM, GEOS can also have what is referred to as a "ramdisk". This is what really makes GEOS shine. Nearly instantaneous loading and saving can be performed with a ramdisk! The beauty in this is that the GEOS developers had enough sense to simulate the track and sector layout of a standard Commodore disk drive within the ramdisk. Since a 1750 RAM expansion contains 512K of RAM, and a 1571 disk has about 341K of total space (including the directory tracks), a simulated 1571 drive became the most popular use for a ramdisk.

The ramdisk also requires a disk driver to control its use. A copy of this driver also resides within the RAM expander until GEOS needs to use it, at which time it is transferred into the computer's memory. If this sounds like GEOS itself must set aside a certain portion of the available RAM for its own use, it's because it does. Many people are confused over this aspect. It would seem like there is some wasted space in the RAM expander. After all, the RAM1571 shows 331 KBytes free when freshly formatted and there is a total of 512K available in the RAM expander. What happens to the rest of the RAM?

Here's what happens: GEOS sets aside the first 64K of the RAM expansion device for its own use.



Several things are done with this area of RAM, and part of it is used to hold up to four different—or even similar—disk drivers. There's a spot for each of drives, A through D. Yes, even drive D!

RAM Rebooting

If you've ever exited from GEOS to BASIC to do something momentarily, and then reloaded GEOS from disk, you'll appreciate the fact that you can reboot GEOS from the RAM expander. This is what the RBOOT program does for you. RBOOT is a small program which is run from BASIC that transfers some code that GEOS has already stored in that first 64K of RAM into the computer's memory. This transferred code is then executed to get GEOS running again.

One thing to note about using RBOOT to restart GEOS: the routines that detect what kinds of drives exist at the various device numbers are skipped, so you may end up with a system crash if any of your device numbers have been changed since exiting from GEOS. These crashes occur because GEOS is using the wrong disk driver information for the current drive.

MoveData

The remainder of the 64K of RAM is used exclusively by a GEOS routine called MoveData. When an application needs to move large chunks of memory around within the computer, it usually calls on the routine MoveData to do the job. MoveData will do just that: move the data from one location in the computer to another as requested by the application. With some applications, this is used quite frequently.

Believe it or not, MoveData can actually work faster if it first moves data into a 17xx REU and then back into the computer to the desired location. This is because MoveData turns the job over to the REU to do all the work. If a 17xx series RAM expander is not being used, then MoveData will do the work itself.

So why is it faster to perform two memory moves by going in and out of the RAM expansion rather than just doing one move within the computer? This anomaly is due to special hardware capability that the 17xx REU's possess known as DMA, or Direct Memory Access. It performs this task at a speed that is 8 times faster than moving the data within the computer itself. You'll notice that the CONFIGURE program has an option to turn this function on or off. Normally, you wouldn't have any reason to turn it off.

More on RAM Allocation

While there's no real documentation about this, it's generally accepted that RAM within a RAM expansion device is allocated in chunks of 64K, or what we programmers commonly refer to as "banks". As mentioned previously, GEOS grabs the first 64K to use for system functions. The RAM1571 driver needs 341K. Since allocation will occur in even 64K blocks, this means that 384K—6 banks of 64K—will be set aside for this purpose. Even though there is 43K of that 384K that it does not use, future versions of the driver could possibly make use of this extra RAM in some manner.

This still leaves 64K of unused space in a 512K RAM expander. Is this wasted space? Not necessarily. There are some applications—geoCanvas and geoWizard come to mind—that have been written to make use of this RAM.

Now that you're thoroughly educated on how GEOS makes use of RAM expansion, let's check out some of the RAM expansion devices that are available and see what they each have to offer.

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Commodore's 17xx Series REU's

While we've already discussed the Commodore 17xx series REU's to some degree, we'll give these devices more complete coverage here. Since these devices were produced by Commodore during the height of C64/128 popularity, they are without question the most widely used RAM expansion devices for our platform. Three different models were produced: the 1700, 1764, and the 1750.

The 1750 REU (512K) allows you to configure either one RAM1571 or two RAM1541's. As an option, you could have one RAM1541 and a shadow of your real 1541 drive. A Shadowed 1541 makes access to your 1541 disk faster, since the access to the disk only needs to occur once. Whenever a sector is read from the disk, it is not only brought into memory as requested, but the disk driver also stores it into the RAM expander so that the next time the sector needs to be read, it will be read from RAM. Likewise, if a sector is written, it is also written to the RAM expander. Should you change the disk in the drive, then the Shadowed 1541 in the RAM expander is cleared and the process begins again with the new disk.

The 1764 REU (256K) is just large enough to contain a single 1541 ramdisk after the first 64K bank is allocated to GEOS for system functions. While it isn't as versatile as the larger 1750, it does give you the minimum requirements for having a truly useful RAM device for GEOS.

The 1700 REU (128K) is not large enough to contain a ramdisk. However, GEOS will still make use of the 1700's first 64K bank in addition to the second 64K bank being made available for any application that might need it. So, even if this is your only RAM expansion device, plug it in anyway. You will have all the benefits of speed and different drive types except for being able to have a ramdisk.

It has also been popular to expand the 17xx series units. Instructions are available in the public domain that detail how to expand these units to 1 or 2 Megabytes. There are also people that will perform this task for you. If you belong to a local user group, check with someone in the group. Chances are, the file describing the upgrade is available in your club's library.

With 1 Megabyte of memory in your 17xx device, you can configure a RAM1581 ramdisk. With 2 Megabytes, you can have 2 RAM1581's. Sometimes, a RAM1571 just isn't big enough.

The 1750 Super Clone

This little device from Software Support International is remarkable in that it will function just like a 1750 will with GEOS. Everything that the 1750 can do, this will also do. Its beauty lies in the fact that it is smaller (about the size of a standard plug-in cartridge), and requires less power from your power supply to operate it. It even contains a DMA chip so that MoveData will make use of it for speeding up memory moves.

GEORAM

GEORAM was developed and marketed by Berkeley Softworks at a time when the 1750 was still high priced and in short supply. It was designed to use less power so that a bigger power supply was not needed when used with the 64, and therefore sold for a lower price. It also does not contain a DMA chip. Because of this, it's a little slower than using a 1750, although

still much faster than using a real disk drive. You can still have a RAM1571 or two RAM1541's with a GEORAM. A different CONFIGURE program is required and was supplied with the device. The reason for this is because GEORAM is accessed differently than a 1750. Different routines must be patched into the GEOS operating system in order to use it.

BBGRam

The BBGRam from Performance Peripherals (PPI) is similar to the GEORAM in how it is accessed. Just as the Super 1750 Clone is a clone of Commodore's 1750 REU, the BBGRam could be considered to be a clone of Berkeley's GEORAM. The BBGRam also comes supplied with the special CONFIGURE files required to use it with GEOS.

The 'G' in BBGRam stands for GEOS, and so it is intended mainly for GEOS. This is not to say it can't be used outside of GEOS, but there just aren't any commercial programs that were written to use it as such. But for GEOS users, it is a blessing because the 'BB' in BBGRam stands for 'Battery Backed'! You can now turn your computer off at the end of the evening and everything in your ramdisk will still be there when you come back to it the next day. Before you start worrying about how long the batteries last, though, let me tell you that BBGRam actually derives its main power from an included power supply—your batteries aren't actually used unless there is a power interruption or outage.

Because the RAM stays active, you can reboot with BBGRBOOT even if the computer was turned off and back on. And not having to reload your ramdisk really speeds up the process of getting 'up and running'. People that use ramdisks will most always copy files from a real disk to a ramdisk before actually beginning their work, but BBGRam will save you the time and trouble of doing this after the files have been initially installed in the unit.

The BBGRam is available in a standard 512K configuration that will give you the same options as a standard GEORAM. But, it is also available with 1 or 2 Megabytes of RAM. With a 2 Megabyte unit, you can use the supplied software to create up to five separate 1571 ramdisks! Additional software allows you to switch between these different ramdisks. You could keep different projects in each of the separate areas. Instead of having 5 1571 ramdisks, you could instead have 2 1581 ramdisks. This can be beneficial if you prefer using 1581 drives. Maybe your real disk drive is a 1581. In that case it's handier to use a 1581 ramdisk when you want to copy a whole disk from the ramdisk to a real disk for backup purposes, or to load the ramdisk with everything needed with just one operation.

While writing this article, I've been using a 2 Megabyte BBGRam plugged into an Aprospand cartridge port expander. Also plugged into this Aprospand unit is a TurboMaster CPU cartridge that allows me to run GEOS 64 at a speed of 4.09 MHz. Talk about a fast combination! These two units—the BBGRam and TurboMaster—have been working together flawlessly.

PPI's RAMDrive

Here is one handy little device for use with GEOS. The RAMDrive from Performance Peripherals can be used with GEOS in much the same manner as the BBGRam, although accessing the device is performed differently. There are, however, some additional benefits to this difference in access. You see, RAMDrive may also be seen as a DOS device outside of GEOS—just like a real disk drive. The same ramdisk that you use from within GEOS may also be used as a DOS partition outside of GEOS. There are different disk drivers available that access the partitions of the RAMDrive as though it was just a simple RAM device and others that access it as though it was a DOS device

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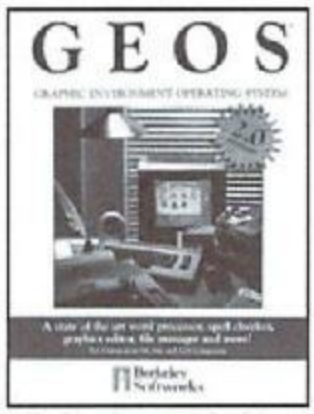
with a real device number. The advantage to using it as a DOS device means that you can directly boot GEOS from it, providing the correct driver is in place. And from outside of GEOS, you can backup your partitions to floppy disks by using a supplied whole disk copier.

RAMDrive, like the BBGRam, operates from its own power supply, and has backup batteries for protection against power loss. The batteries are recharged by the power supply, and are located inside the RAMDrive making this device ideal for transporting data between two or more computers.



Initially, RAMDrive came in three capacities: 512K, 1 Megabyte, and 2 Megabytes. Recent information from PPI, however, seems to indicate that only the latter two models are still being produced and sold.

RAMDrive has a DOS (Disk Operating System) which must be installed in the upper part of the unit's RAM, and which takes up 66K of the memory. After this installation, a 1 Megabyte RAMDrive has enough space to hold one 1581 partition (ramdisk) while giving GEOS either 64K or 128K of system RAM. (Remember, an extra bank of RAM could be useful to some GEOS applications.) A 2 Megabyte RAMDrive could have two 1581 partitions while giving GEOS either 64K or 128K of system RAM. In addition, another 196K would be available for creation of a standard RAM1541 ramdisk. While other configurations are possible, these seem to be the most useful from the point of view of a GEOS user.

CMD's RAMLink

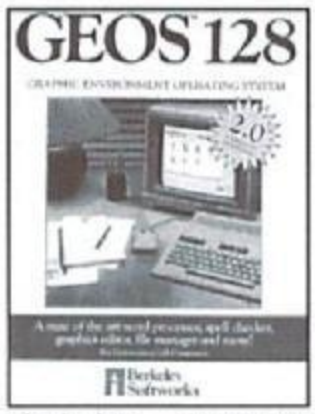
The RAMLink from Creative Micro Designs should have had a different name. It should have been called 'RamKing'. Perhaps it started out as a link to your RAM expansion device, but by the time it made it to production, RAMLink became much more than that. In addition to, or even instead of, being able to plug in your 17xx series REU or GEORAM to use with GEOS, you can install RAM directly inside the RAMLink. In fact you can have as much as 16 Megabytes of the stuff! And you can make use of it both in and out of GEOS, just like the RAMDrive.

For a heavy GEOS user, the RAMLink gives you the most possibilities available with any RAM device ever. This product is perhaps the most remarkable device ever produced for the Commodore 64 or 128, and ranks right up there with products produced for other computers.

Remember when I mentioned that some applications might be written to use a 64K bank for its own purpose? Well don't be surprised if someday an application is written that will require much more than this. The RAMLink might be the only way to go.

With a 17xx series REU plugged into the RAMLink, you can also take advantage of the DMA capabilities of the REU for GEOS. GEOS will still utilize the first 64K bank of RAM, and that RAM will be located in the REU.

On the back of the RAMLink is a parallel port for connection to a CMD Hard Drive. Normally this port is not used from within GEOS, since the GEOS Disk Turbo routines for the HD only use the serial port. However, there is a parallel driver that has just been developed for HD native partitions with the 128 which is undergoing testing by a few individuals. Disk access to the HD is considerably faster with this parallel driver. Expect to see this as well as additional parallel drivers for 1581 partitions for both the 64 and 128 being made available in the future.



Naturally, the RAMLink has its own power supply and also comes with an optional battery backup. It also can be fitted with a Real-Time Clock chip, and comes with a GEOS autoexec file for automatically setting the GEOS clock during bootup. After you've used a RAMLink for awhile, you'll think it's just another disk drive connected to your system—only much faster. And you won't know how to get along without it.

BBU

Although not a RAM expansion device, this ingenious piece of hardware does deserve mention here. The BBU, another device from Performance Peripherals, is a cartridge that plugs into the cartridge port and has a slot that will accept either a 17xx REU or a GEORAM. BBU stands for Battery BackUp, and allows your RAM expander to retain its memory just like the BBGRam does. In fact, a GEORAM plugged into the BBU will function essentially the same as a 512K BBGRam.

The 128'S Bank Zero RAM

Not really RAM expansion so to speak, however a portion of the 64K RAM that resides in bank 0 on the 128 could in a sense be considered expansion RAM. It is worth mentioning here just for informational value. Unlike BASIC programs which run in bank zero on the 128, GEOS applications run in bank one. In fact, a good portion of bank one appears very similar to that of GEOS 64. There are some differences to accommodate the 128's needs, but the biggest difference is in how GEOS uses bank one.

Unlike GEOS 64, you can use GEOS 128 with two disk drives of different types. The reason is because GEOS stores both disk drivers in bank zero memory when RAM expansion is not in use. The driver that is being used is run from the usual location in bank one just as it would be on the 64, then when the other drive needs to be accessed, GEOS will swap positions with each driver.

On the 64, the printer driver always has to be loaded in from disk... not so on the 128. Again, GEOS stores a copy of it in bank zero. When an application calls for the printer driver, GEOS will bring it into place in bank one.

If you ever run a desk accessory in GEOS 128, you may have noticed that they seem to load much faster. On the 64, the area of memory where the desk accessory will occupy is temporarily stored in a temporary disk file (called a "swap file") before the desk accessory is loaded. When you exit the desk accessory, the data from the temporary file is reloaded back into place. This is how an application can consume all available memory and still be able to load in a desk accessory. With GEOS 128, the area the desk accessory will occupy is instead transferred to an area in bank zero. When finished, that area is moved back into bank one. So, even an exit from a desk accessory is quicker on the 128.

Even some of the GEOS applications themselves—the 128 Desktop included—make use of the extra RAM in bank zero. Additional data might be stored there and brought into bank one when needed.

Look Around!

If you love using GEOS but haven't gotten around to getting RAM expansion, look around. Check the surplus stores and rummage sales. Chances are you'll find a 1750 or a GEORAM lying around just waiting for you. You can still buy the 1750 Super Clone brand new. If you can afford it, go for the BBGRam, the RAMDrive, or the RAMLink. Assess your needs and your desires and always think big! If you are thinking about the 512K BBGRam, go for the 1 Megabyte unit instead. If you are contemplating the RAMLink with 1 Megabyte installed, go for 4 Megabytes. Soon, you'll wish it had 8 Megabytes. No matter what you decide, if you're serious about GEOS, get some RAM expansion. After all, don't you think your 1541 deserves a break?

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SOFTWARE IN REVIEW

Lottoman & Lottoman II

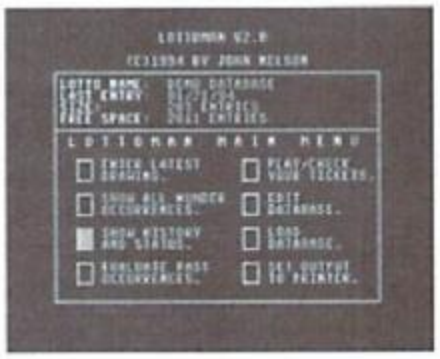
Picking a Winner

LottoMan; $19.95; Lottoman II; $19.95; by John Nelson & Dave Bell; Lottoman, P.O. Box 44, New Millport PA 16861.

The LottoMan programs, *LottoMan* and *LottoMan II*, add excitement to playing the lottery. A lot of people believe there is a pattern to the random numbers drawn in the various lottery games. These programs allow serious lottery players to enter winning lottery numbers in a database where the numbers can then be analyzed in a number of ways.

The first program in the LottoMan series contains the tools to create your own lottery database and analyze the data. Before you can do this, you'll need to get a record of previous lottery drawings. It's best to get the winning numbers from as far back as possible. As stated in the manual, *LottoMan* itself is a data hungry program; the more information you can feed it, the better the results it can provide.

When I received this program to review, I did not have my own record of previous drawings. I was able to obtain a list of the winning numbers for the past year from my local grocery store. It took me approximately an hour to enter all the data. I felt the data entry editor could have been just a tad easier to use. To advance to the field for the next number, you must press the right cursor key. It would have been easier if the program could automatically advance to the next field, but then, I guess you wouldn't be able to edit your number if a mistake was made. Anyways, it did take awhile before I was comfortable with the lottery number entry editor.



Lottoman

The *LottoMan* program can be used for any lottery game which uses the numbers 1 through 99 and draws at least 5 numbers and no more than 10. *LottoMan* doesn't allow for lottery games which draw a duplicate number such as an "alternate". The manual states the program does not aim to help you select all of the numbers required to win the jackpot, but to select enough winning numbers to at least win something. In my book, winning a little is better than nothing at all.

Once you've entered all your data, you can begin analyzing the information. This was fun! It's interesting to see which numbers were drawn the most and the least. *LottoMan* also provides an average and rating of number occurrences by comparing the occurrences of each number with the number of lottery games played. The rating can be displayed on the screen or be sent to your printer, making it very easy to see which numbers are hot and which are cold. One other helpful bit of information is the occurrence of specific number combinations. This feature allows you to input two numbers and the program will tell you how many times those numbers were drawn together in the past.

Another very useful option is the play/check ticket item. From this selection you can add or delete your actual ticket. You can also check to see how many times your ticket has hit in the past.

Other options allow you to view the history of a desired number and divide your database into sectors for an even more in-depth analysis. If your lottery game uses a total of 48 different numbers, you would have 5 different sectors... 4 with ten numbers and the final sector with the 8 remaining numbers. From here, you can determine the number of occurrences of individual sectors. The program can even provide you a graph of these sector occurrences.

If you'd like even more number power, you'll also want to purchase *LottoMan II*. *LottoMan II* is used to generate numbers and detect patterns, such as increasing patterns, among the winning numbers.

LottoMan II also contains a number occurrence feature with different variations such as numbers appearing the most in a month, numbers due to hit according to average, and etc. The Ticket database can also be accessed through *LottoMan II*. You can delete tickets here, but unfortunately, you can't add them. To do so, you'll have to re-load the first *LottoMan* program. This proves to be a little inconvenient and frustrating at times.

Lottoman II

Of the two programs, *LottoMan II* is definitely more complicated. But both programs come with excellent documentation to help you through those rough spots, and both will be useful to lottery game enthusiasts. But remember: even armed with both of these great programs, you can't win if you don't play!

- Sherry Freedline

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Accessories: Leroy's Cheatsheets

$3.95 each; Cheatsheet Products & Keystone Software (CPI), P.O. Box 8369, Pittsburgh PA 15218; (412) 243-1049. Partial listing (C64): Disk-1541; GEOS 2.0; For The Beginner; SwiftCalc; Flight Simulator II; BASIC 2.0; Word Writer 4, 5 & 6; Paper Clip III; Blank. (C128): For The Beginner; Superscript 128; Blank.

Leroy's Cheatsheets have been around for almost as long as I can remember. Unfortunately for me, they are one of those items I've always meant to purchase but never actually got around to buying. And, now that I've actually seen and used them, I wish I hadn't procrastinated for so long. They make programming, game playing, and productivity sessions so much simpler!

Leroy's Cheatsheets are keyboard overlays containing function key definitions and other relevant information for the various programs and subjects they cover. Two sizes/layouts are used for the Commodore 64 and 128 computers. Blank overlays are also available for use with programs and other subjects that are not already provided by CPI.

At the moment, I am using the BASIC 2.0 overlay on my Commodore 64. This particular overlay features definitions and shortcut key combinations for programming statements, numeric functions, commands, string functions, I/O statements, as well as vital disk commands, device number listings, and how to list a program on the printer. Without the overlay, I'd have to look for the desired information in my manual. Now I have it right at my fingertips.

Needless to say, Leroy's Cheatsheets can be a handy time saver. And since each of the overlays is quite thin, I can easily store a number of them right on my keyboard—one on top of the other. This way, they're always right where I need them, when I need them.

A quick glance at the Cheatsheets available shows that CPI provides for a wide variety of programs such as Word Processors, Spreadsheets, Database programs—even games such as Flight Simulator II. And with the blank sheets, overlays for all your programs—even the commands used for an online network—become an almost instant reality.

As you can see, the possibilities are nearly endless! So, the next time you have to reach for a manual, you might want to reach for the phone instead—and order a Cheatsheet from CPI!

-Sherry Freedline

Bookware: Ram Dos 128 Case Study

$19.95; by Brett J. Tabke; distributed by Parsec, P.O. Box 111, Salem MA 01970-0111.

I love information. Anyone who knows my name from the Internet or other places knows I simply crave it. In my mind, learning is an endless process, and one can never learn enough. Thus, I am writing you about the latest piece of information that has crossed my desk: *Ram Dos 128 Case Study* by Brett J. Tabke.

This reference provides both information on, and a complete commented disassembly of, Ram Dos 128—a program that allows Ram Expansion Unit (REU) users to use the REU as a ram disk drive. Most people understand what functions Ram Dos 128 provides, but few people really understand how it provides those functions.

The book is divided into two main portions. The first 17 pages introduces the reader to the Ram Dos 128 system, while the following pages presents the reader with a complete annotated disassembly of the Ram Dos 128 code. The reader is assumed to have used Ram Dos 128 and know how to read machine language code.

The first part of the book provides for the easiest reading, as the latter part is simply commented source. There are a number of topics covered in the first part, however, including:

- A general overview of how the Ram Dos 128 software performs its task
- Differences between Ram Dos 128 and real Commodore drives
- The possible error codes that Ram Dos 128 can return
- Possible ways to recover data off of a corrupted ram disk.
- The physical layout of various data structures in the ram disk
- The different revisions of RAM Expansion Units (REUs) that Commodore manufactured and their differences
- The practice of expanding REU hardware to 2 megabytes and how Ram Dos 128 handles the expanded memory

It should be noted at this point that the book is not for everyone. Those who wish to modify Ram Dos 128, write programs to make efficient use of Ram Dos 128 and its functions, and those who strive to replicate the function of Ram Dos 128 in other programs will find the greatest value in the book. However, the first part covered topics that are of general interest to all people.

Two topics caught my attention right away. In one section, the author describes the differences in the various REU units Commodore produced. The detail of the presentation is apparent. The author even goes so far as to suggest possible modifications to REU units to solve incompatibility problems if they exist. From this section, one can discern that the author has actually studied the units and has tried many different configurations. This bolsters my confidence in his disassembly presented in the second part. Another section describes the use of expanded REUs. Most REU owners know that the REU can be expanded to 512KB conventionally, and can be expanded to 1 or 2 MB with some additional hardware. The author describes the possible problems with using the stock Ram Dos 128 routines with the 2MB REUs and how to circumvent the problems.

As with most references, however, this book has some annoyances. There is no index, so one can't quickly look up routines or important keywords. An index can prove invaluable in a reference work, and the lack of one makes finding information harder. Another minor annoyance is somewhat related. In the first part, the author notes that the Ram Dos 128 code uses every "programming technique in the book" and "invents a few as well". However, the author stops short of providing a pointer to these examples. The reader is left to find them on his or her own. Finally, the author notes that patches are needed to use Ram Dos 128 with 1 or 2MB REU units, but I couldn't find any more information about these patches. With many REU owners moving up to 1 and 2MB REUs, this information is somewhat necessary.

As stated earlier, those delving into using or re-writing Ram Dos 128 routines or concepts should have this reference in their libraries. The book wastes no space with unnecessary information, so every page is full of good material. Even in spite of its omissions, this work presents only quality information and presents it well.

-Jim Brain

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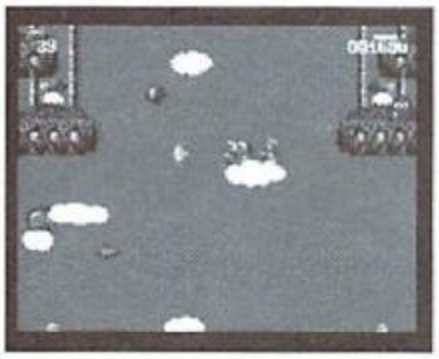
GAMES MINIVIEWS

Heavenbound
Arkanoid II
The President is Missing
Who Framed Roger Rabbit?



Heavenbound
Electric Boys Entertainment Software
Available from CMD

Unfortunately, these days new programs for the Commodore computer are few and far between. Thank goodness that the crew at Creative Micro Designs, who continually strive to provide hungry Commodore enthusiasts with new high quality products, have recently entered into an agreement with Electric Boys Entertainment Software of Purley, England. *Heavenbound* is the first result of this agreement to convert and import high-quality Commodore games into North America.

Heavenbound itself presents Commodore game players with an all new arcade challenge. The land of Elfantania, the mythical setting for *Heavenbound*, is filled with bright, colorful graphics which are sure to dazzle players of all ages. A delightful toe-tapping tune rings through the air as you play, and it won't take long before you'll find yourself humming right along with this catchy ditty.

The main character of this mythical land is T-Fant, none other than a pink elephant. As the brief documentation that accompanies the game points out, it's against the law for a pink elephant to be seen at times of complete sanity. Regardless of this fact, there's apparently no stopping T-Fant from pursuing his life-long dream: to discover Heaven.

Your mission, should you decide to accept it (and you will!), is to help guide T-Fant upwards into Heaven. This is done by jumping from a piece of land on the side of the screen to a cloud, then up to another cloud, over and up to another piece of land... eh, you get the picture. Of course, it's not all that easy. On your way up you'll encounter a slew of nasty cloud demons and creepy creatures. Confrontations with these evil enemies could result in the loss of one of your three initial lives. The presence of a timer adds to the challenge of this one player game.

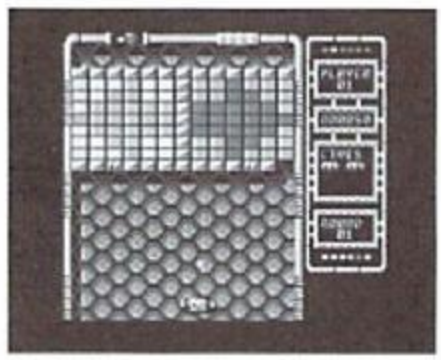
Unlike most scrolling games, the screen in Heavenbound scrolls upwards (or downwards if you happen to fall) instead of scrolling left to right.

As I mentioned earlier, you need to guide T-Fant upwards from cloud to cloud using of a joystick or a gamepad in the joystick port. That sounds quite easy, but many of the clouds are situated so that jumping to the next cloud is quite a trick in itself. At first, you may even find yourself becoming a bit frustrated—but with practice and a little patience, you'll be amply rewarded!

Some of the clouds are inhabited by your worst nightmare, but never fear... you're equipped with plenty of monster-hating bullets. One press of your fire-button and they'll be blasted to smithereens. Bonuses containing extended time, increased shot power, and extra lives can also be found hidden among the clouds—and you'll need to locate and use these to complete the game.

So, what are you waiting for? Dust off that joystick! Finally, there's a new game in town! Do you have what it takes to make it to Heaven? There's only one way to find out for sure... play *Heavenbound!*

- Sherry Freedline



Arkanoid II: The Revenge of Doh
Taito
Available from SSI

Arkanoid makes me recall days long ago, when I spent many hours playing the classic video game Break Out on an Atari 2600 game system.

For those of who aren't acquainted with Break Out, the game resembles a solitaire version of Pong; but instead of merely trying to return the ball, you must also aim the ball at a multitude of blocks to remove them from the screen. Once all the blocks have been cleared away, you move on to a new and progressively more challenging level.

Around 1988, Taito introduced *Arkanoid*—a one- or two-player space-aged rendition of Break Out. Each of *Arkanoid's* 33 levels is a "cosmic void" containing one or more barriers constructed of colorful energy blocks. As you cruise through space in your ship, Vaus2, you must deflect energy balls to destroy these blocks and ultimately Doh, who threatens civilization. Some energy blocks must be hit twice before they'll vanish, while some others cannot be destroyed at all. Upon destruction, some energy blocks release a special capsule containing features which can arm your ship with a laser, expand the width of your ship, award an extra ship, open the gate to the next level, and more!

Alien life forms also swarm through the "cosmic void" in a desperate attempt to distract your efforts of destroying the energy blocks. Clear the void and the gates open to reveal a new and even more challenging level. Eventually, you'll meet up with Doh.

A year after the release of the original, *Arkanoid II* hit the shelves with 67 new levels, 4 new capsules, and better graphics. Now up to four players could compete against each other. In *Arkanoid II* you must destroy Doh's flagship Xorg. A mouse is recommended for both versions but options are provided for game play with a keyboard, joystick, or paddle.

Game play is definitely addicting due to the desire to view the next successive screen and, of course, to finally beat and conquer Doh or

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Xorg. *Arkanoid II* thankfully lacks one feature which I found very frustrating in the original *Arkanoid*. After the loss of your last ship, the original sends you back to the title screen where you have to sit through the whole introduction again, when all you really want to do is play the game. However, frustrations still exist in *Arkanoid II* when you are sent back to the very first level after the loss of your last ship. There are no options to continue the game from the last level you mastered. But, there is a way around this, with a cartridge such as Action Replay you can locate a Poke to provide yourself with infinite ships. I know, that's cheating, but it does indeed end the frustrations. And, even with infinite lives, it takes an enormous amount of time to play through 67 levels! With all of *Arkanoid II's* colorful graphics, nifty sound effects, and challenging game play I bet you can't play just one round!

- Sherry Freedline

The President is Missing!
Cosmi
Available from CMD

Today (June 6, 1996), began just like every other day—until I walked outside. Upon entering the dark and dreary hallway of my apartment complex I stumbled over a package wrapped in plain brown paper.

Quickly, I returned to my apartment. My errands could wait. The package was begging to be opened. Inside I found a note written on a piece of brown paper like that of a paper grocery bag, several other documents, a cassette tape, and two disks.

After hastily scanning the note and its accompanying documents I became horrified as I realized the President and the leaders of the European nations had been abducted. I had been chosen by the Vice President to head the investigation of the most notorious crime ever committed!

You may also be awarded this challenge with *The President is Missing* from Cosmi. The game has two goals; first locate the President along with the other abductees and then identify those responsible for the kidnapping.

The enclosed disks provide access to the Special Intelligence System. A hacker-like feeling is experienced as the security access file is established and the Special Intelligence System is explored for the first time. The system contains almost everything needed to solve the investigation including case-related dossiers, photographs, documents, records, case files, reports, and highly confidential information. The only thing the system doesn't contain is the puzzle-solving skills necessary to solve the crime—you'll have to provide those yourself.

An added to bonus to the game is the cassette tape featuring audio evidence transcript files. These transcripts contain audio clips vital to solving the kidnapping case.

The game's graphics feature a window-style presentation of the various text files and photographs. The environment is appropriately rounded off with an assortment of bleeps and blips produced as data is transferred from the Special Intelligence System to your Commodore.

Well, time is wasting... there's a mystery to be solved! Find out if you have what it takes to solve this mysterious case. The future of the entire world is at stake!

- Sherry Freedline

Who Framed Roger Rabbit?
Buena Vista Software
Available from SSI

Welcome to the world of Toontown where you'll experience the thrill of life as a Toon in Buena Vista Software's rendition of *Who Framed Roger Rabbit?*

Judge Doom has framed Roger for the murder of Marvin, owner of Toontown. In his missing will, Marvin has left Toontown to the Toons. Toontown's existence is threatened by Judge Doom's special chemical known as "The Dip" which dissolves a toon on contact! The Judge and Roger race through Toontown in search of Marvin's will. In order to save Toontown, Roger must find the will first and defeat the sinister Judge Doom.

Who Framed Roger Rabbit? actually consists of three games; Benny the Cab, The Ink and Paint Club, and the Gag Factory. Each part must be completed in order to move on to the next one. In Benny the Cab you must steer Roger through the streets of Hollywood as he races to the Ink and Paint Club to search for the will. This is no leisurely Sunday drive through the countryside as Roger must avoid randomly placed puddles of The Dip and collisions with Red Cars.

Survive the streets of Hollywood and Roger will arrive at the infamous Ink and Paint Club. Marvin's will has been hidden somewhere in the nightclub among the receipts, napkins, and checks scattered on each of the tables. Roger must gather all the papers and avoid the drinks as he races around each of the tables. It only takes one small sip to stop Roger dead in his tracks.

After Roger's nightclub excursion he'll arrive at the Gag Factory. Here he must gather gags to use against the factory's weasels. The gags provoke the weasels into laughing themselves to death. Once Roger conquers the weasels he'll meet up with Judge Doom. Defeat the Judge and Toontown will be saved!

The premise of *Who Framed Roger Rabbit* makes for a great game. The graphics and sound effects are excellent! However, my desire to play the game came to a screeching halt once I realized that after losing the game I could not continue playing without re-loading the game all over again from the very start! This might not be so bad if it didn't take quite so long to load the game, but the loading process is over five minutes. If you can tolerate this, life as a Toon is indeed full of fun and laughs!

- Sherry Freedline

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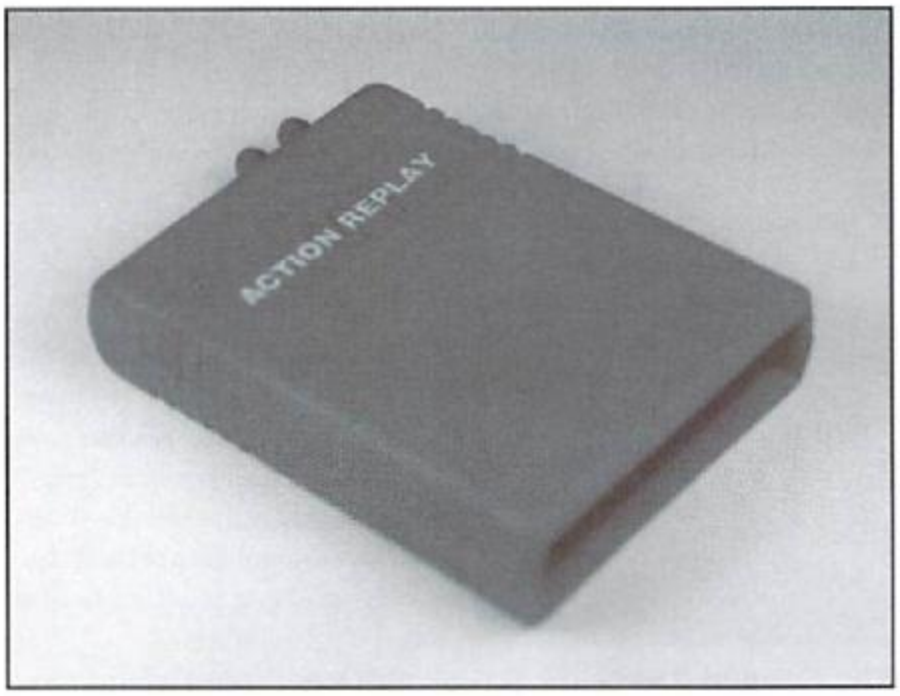
HARDWARE IN REVIEW

ACTION REPLAY

Datel's Swiss Army Cartridge



Action Replay v5.2; $59.95; Datel Electronics, Ltd.; Distributed in North America by Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028, 1-800-638-3263.

The folks at Datel Electronics Limited realize that game playing is indeed a serious business. Like a knight in shining armor, Datel comes to the rescue of frustrated Commodore game players with the Action Replay cartridge.

My favorite type of game is one consisting of a myriad of successive levels containing rewards of unique new graphics and music. Of course the game should also be challenging. These games leave me with a burning desire to experience all of their many levels. Unfortunately, my gaming abilities rarely agree with my ambitions and I tend to end up frustrated. Now, thanks to the assistance of my little red Action Replay cartridge, there's hope!!!

Upon opening the Action Replay package my first thought was, this looks cool. I enjoy gadgets, and that's exactly what the Action Replay cartridge resembles. As I stated above it's contained in a red plastic cartridge, but the addition of two red buttons protruding from its rear right throws it into my "gadget" category. The inner button is called the Freeze button, and the outer one is the Reset button.

The Reset button provides its user with access to the Startup Menu. The Freeze button is used to interrupt normal operation of the computer and to display the Freeze Menu.

First of all, to use the cartridge, it must be inserted into the Commodore's expansion port. Pressing F3 resets the computer, making the cartridge seemingly invisible to the computer. The Startup Menu disappears and the normal cold start Commodore screen appears from which you can then load your favorite program.

Startup Menu

There are a few items on the Startup Menu you may wish to use. First is the Configure Memory option. This option is used in conjunction with yet another great Action Replay feature - its backup utility. You'll need to activate this option prior to performing any backups with Action Replay. This option will fill the computer's memory with a single byte value to make the Action Replay's Backup Compaction System more efficient.

Secondly, you'll surely make use of the utilities listed under F5. Here you can find the utilities needed to format a disk, copy a file, or copy an entire disk. It's great to have all these utilities only a keypress or two away.

Last, but not least, F7 installs Action Replay's fastloader. This is really handy if you don't already own CMD's Jiffy DOS. Life will never be the same once you've used a fastloader. The fastloader can load a 200 block program in approximately 9 seconds. However, I tried the fastloader out on a few of my commercial games and experienced some incompatibility problems. You'll find this to be a very common problem among all of the popular fastloader programs.

Freeze Menu

The Freeze Menu may be activated at any time by a quick press of the Freeze Button. This is where you'll find a host of nifty utilities hiding out just waiting to be called into action. Included are utilities designed specifically to ease some of your gaming frustrations, along with other extremely useful graphic and programming utilities. Due to the gaming nature of this review, I will only briefly explain those utilities not directly related to gaming though they are just as powerful, if not more so.

Poke Finder

As an avid game player, I am addicted to Action Replay's Poke Finder utility, so much so that the cartridge has found a permanent home in my expansion port. With many games, once you've lost your last life you must re-start the game from the beginning. This is frustration to the max! Now there's a way to end this aggravation by using the Poke Finder to locate the right code to poke into memory, providing you with infinite lives. I figured this would probably require some long drawn out process; surprisingly, it's very easy to use!

First of all, with the cartridge installed, load your game. Once game play has begun, note the number of lives remaining, then

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quickly press the Freeze Button. The game play will be interrupted and the Freeze Menu will appear. Press the X key to activate the Poke Finder. After a short pause, one of several possible messages will appear. The most desired message displays one or more pokes and informs you these pokes have been installed. Another message may request you to continue game play, lose one life, and return to the Poke Finder. This does not point to a failure, it simply means the computer needs to dig just a bit deeper. I've had successful results after receiving both of the above messages. The third message, of course, will state the Poke Finder utility has aborted due to its failure to locate the poke.

If the Poke Finder is successful, it not only lists the pokes on the screen for you, but it also installs them so you may continue on with your game. Press F3 to continue game play, exactly where you left off! It can't get much easier than this.

According to the manual, Action Replay's Poke Finder has a success rate of 80% and claims to be more successful with older games.

Pokes & Parameters

Sometimes Commodore magazines will publish "Cheat Pokes & Parameters" to provide game players with infinite lives, a stopped timer, and disabled sprite collisions. These tricks can be entered through the Freeze Menu's Poke and Parameters options. Both of these options are very easy to use. Though they are very simple, they open a whole new world as far as game playing is concerned.

Sprite Killer

The Sprite Killer utility is used to disable collisions between two sprites, between sprites and background data, or both. You can then return to game play and (if successful) bumping into that evil monster sprite will no longer result in the loss of a life! I found that the Sprite Killer utility wasn't quite as successful as the Poke Finder. This is due to the fact that what may appear to be a sprite may actually be user defined characters or programmed using coordinate information versus the VIC system. When this is true, the Sprite Killer will have no effect on the game. The Sprite Killer is more successful with older Commodore games.

Graphic Utilities

Several handy graphic utilities are also available from the same Freeze Menu. You may have wondered how magazines are able to grab screen shots directly from all those great games. Action Replay provides one such means for grabbing screen shots although, it can only save Multicolor HiRes screens. Once the desired screen/picture in your program appears, freeze the screen with the Freeze Button. Once the menu appears, F7 can be used to view the frozen screen and the S key allows the same screen to be saved to disk. Pictures can be saved in the following formats: Blazing Paddles, Koala, Advanced Art Studio, Artist 64, Vidcom 64, and Image System. If the format you prefer is not listed above, I'd recommend saving it as a Koala file. There are many Koala conversion utilities available on BBS's and Online services. One thing to keep in mind when saving any graphics from commercial programs is that these graphics should be treated the same as any other copyrighted program. They should be kept only for your personal use and enjoyment.

Frozen screens can also be dumped to the printer with the Print Dump option. This options works with any graphics mode, but the best overall results will be obtained from multicolor bitmap modes. The Printer Dump is unable to print any sprites contained in the frozen picture. Colors are represented as shades of grey.

Disk Utilities

Action Replay contains a backup utility that should only be used for personal backup copies of commercial software. Like the rest of its utilities it is also very easy to use. First, from the Startup Menu, select the Configure Memory option. Once the program to be backed up is running, press the Freeze Button and Action Replay's compactor will then go into action, then the program will be ready to be saved to disk. Backups can be loaded from disk without the use of the Action Replay cartridge by adding a special "loader" to the same disk. Complete and thorough directions are contained in Action Replay's manual.

The Freeze Menu also allows a directory of your current disk to be viewed without disturbing the contents of your computer's memory. This is great for those games that require more than one sitting to complete. It allows you to break out of your program, load up a directory, and then return to your program where you left off.

> "As an avid game player, I am addicted to Action Replay's Poke Finder utility..."

Programming Utilities

Of course Action Replay wouldn't be complete without a couple of utilities to satisfy the programmer. Both a Sprite Monitor and a Machine Code Monitor are available from the Freeze Menu.

The Sprite Monitor allows any sprites in memory to be displayed on the screen. Seven sprites at a time may be viewed. The Sprite Monitor contains options which allow access to any of the computer's 4 video banks, displays of sprites in either Standard or Multicolor modes, saves of the current sprite to disk, loading of any previously saved sprites into the current sprite position, and the removal of the current sprite which makes it invisible. After doing all this, you may even return to the program. For all you programmers out there, the uses of this utility are almost endless.

The Machine Code Monitor is available from either the Freeze Menu or from Fastload. While in a game or any program, the extended Machine Code Monitor allows the contents of memory (screen, stack, and zero page) to be scrutinized. Of course the memory will resemble that of the program at the time it was frozen with the Freeze Button. Changes may then be made and will be included when the program is restarted or saved. If you plan on using the Machine Code Monitor you should be thoroughly familiar with the 6502 assembly language. Action Replay's manual contains a summary and a description of the commands which can be used with the ML Monitor.

In Conclusion...

The Action Replay Cartridge is available from Creative Micro Designs for $59.95. Is it worth it? Well, when you consider the fact that a Machine Language Monitor alone sells for approximately $20, and a Backup/Compression Program such as Mad Man's CKit retails for $39.95 along with the fact that the Action Replay cartridge contains both of these valuable utilities plus more... it's a great investment! Right now, due to differences in U.S. copyright laws, Creative Micro Designs is able to provide the full-featured version (5.2). Because the current version overseas is actually version 6 but doesn't have as many features, CMD adds a bonus disk from Datel containing additional graphic and demo utilities making this an even better deal!

I may not be a programmer but everyday it seems like my computing knowledge increases, along with my needs for more powerful utilities. All of Action Replay's utilities are very easy to use and I know it will be a long time before I manage to outgrow them. And the best thing is... they are all contained in one place... a little red cartridge!

- Sherry Freedline

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Graphic Interpretation

by Steve Vander Ark

BEEN TO ANY GOOD SHOWS, LATELY?

A couple of weeks ago in Lansing, Michigan, I attended a Commodore computer expo put on by a bunch of really nice folks in the Lansing Area Commodore Club. It was great! Now, I wasn't around for those "World Of Commodore" shows they used to have, which were big exciting mega-shows and all, so maybe I don't know what a good show is "supposed" to be like. But I'll tell you, in Lansing I walked around a room piled with every variety of Commodore hardware I had ever heard of, (and some I hadn't—did you know that Commodore made an IBM-compatible laptop?) and had a ball. I sure wished that I had a whole lot of money to spend, too, because I saw games for sale there that I have always *dreamed* of owning but which are now, sadly, out of print. I did buy one game, though, a great role-playing game called "Wasteland" which I've always wanted.

As I cruised the room, a couple of things really struck me. The most obvious is that Commodore computing is pretty much becoming GEOS computing. Anything that's new and anywhere close to the cutting edge is happening in the GEOS environment. I'll tell you some specifics in a moment. Another thing I noticed was that there are still plenty of really fanatic Commodore users around. There were people at this show with truly amazing conglomerations of computer hardware constructed around 64's and 128's. These people have the computer smarts to work with any platform out there, but choose the Commodore 8-bit machines as outlets for their engineering and computing talents. A Mac jockey running QuickTime movies and CD-ROM multimedia might not understand this, but I do. Those Commodore machines might not be the fastest computers in the world, and they certainly can't match the sixteen-million colors you get with

today's top-of-the-line computers, but darn it, they get under your skin. And they're understandable.

If you aren't sure what I mean by understandable, think about this. When I program the Commodore 64 (and that isn't often), I can honestly do pretty much whatever I want to with it. I can create graphics, sprites, sounds, and so on from scratch. I can trick the screen into displaying more than eight sprites at a time. I can program for the joystick so my sprites move where I want them to go. I can even splash a little machine language routine into the middle if I want to, just to spice things up. The reason I can do all these things isn't because I am a master programmer. I'm not, believe me. It's because doing those things on a Commodore is not really all that hard to understand. The inner workings are complicated, certainly, and archaic, true, but they make sense to me. I learned a lot of things from articles in computer magazines. I learned more from messing around with it. The point is, I learned. The Commodore is a hobbyist's machine; with only a modest investment of time, anyone can learn how it works. Really. Even me.

What's really exciting is that I can do all this stuff in GEOS too. No, I am not a machine language programmer. But there's a programming language for the rest of us called geoBASIC which lets even guys like me write neat GEOS programs. Soon I'll spend some time tinkering around with geoBASIC and let you tag along, so if you want to be ready to learn along with me then, you might want to buy a copy of geoBASIC. Creative Micro Designs carries it; check elsewhere in this magazine for their ad.

But that will be next issue, or maybe the one after that. This time around, let me tell you what wonders and marvels I saw for GEOS there in Lansing. When I said that it is in GEOS that the cutting edge things are happening, I am talking mostly about the work of Maurice Randall, whose columns also appear in this magazine. Maurice, for those of you who don't know already, is the person who created geoSHELL, a command line interface for running GEOS. Maurice is also working on a new 80-column desktop publishing program for GEOS. But somewhere along the way, he has also found time to create what I believe is the first fax program for the Commodore computer.

At his table there in Lansing, humming with all kinds of Commodore equipment, was a fax machine hooked up by phone line to a 128. In the back of the computer was a SwiftLink cartridge, which I am told is necessary to handle the faster baud rate the fax program requires. And on the screen was one of the nicest-looking GEOS programs I have ever seen. I suppose that a really slick screen image isn't really as important as whether the program works or not, but it sure

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"COMMODORE COMPUTING IS PRETTY MUCH BECOMING GEOS COMPUTING. ANYTHING THAT'S NEW AND ANYWHERE CLOSE TO THE CUTTING EDGE IS HAPPENING IN THE GEOS ENVIRONMENT."

doesn't hurt to sport a nice modern graphic interface. The geoFax screen is beautifully done and the program is all the more elegant because of that. And of course, the program *does* work, and very nicely too. Maurice was sending faxes all afternoon.

Maurice wasn't the only person showing GEOS on the cutting edge. One of the featured guests was Dale Sidebottom, who has spent the last couple of years learning the ins and outs of laser printing. Dale is really an expert at it, and he gave a very informative talk about using a laser printer with the Commodore. During his seminar, Dale printed out a set of name labels from geoWrite, along the way giving a lot of useful tips. He also demonstrated a program which drives a laser printer for a non-GEOS ASCII text file on the Commodore. Never having seen a laser printer run from GEOS before, I found the whole thing fascinating. Who knows, maybe I'll actually buy a laser printer one of these days to replace my trusty 24-pin Epson.

Things like quick and easy laser printing and faxing straight from GEOS are exciting to see. I got a real sense that the full power of the Commodore and particularly of the GEOS operating system has not yet been reached. But since I don't own a SwiftLink, a fax modem, or a laser printer, they are things which don't directly help me out.

I picked up a disk, however, which I *can* get some immediate use from. It's a disk of shareware programs written by a fellow named Spike Dethman. This collection of files is a must for GEOS users; you can find it on GEnie (file number 15772). That file is an archive of eighteen separate programs along with their documentation. Included is the current version of geoPack, which is an excellent utility for converting files between GEOS and Commodore format. Also in this collections are a number of GEOS 64 input drivers, including a set of them for joystick port two and a new version of the drivers for the Koala Pad.

These new Koala Pad drivers are exciting for anyone who has had a hankering to use their graphics tablet as a pointing device. The input driver which comes with GEOS 64 leaves much to be desired. Spike's versions (there are four altogether) really work a lot better by changing the way that the tablet input is read. In the old version, various locations on the Koala Pad surface corresponded to specific locations on the screen. That meant that if you touched the tablet, the pointer would jump to the screen location instantly. It was very difficult to find the exact spots needed to operate things like drop-down menus this way. The new versions instead tell the pointer to scroll in the direction you are moving on the tablet surface, making the Koala Pad operate something like a trackball. Two of the variations use the Koala Pad sideways, with the buttons on the right; you can use your thumbnail on the tablet surface and your fingers on the buttons.

Those drivers are interesting, true, but the most impressive new ideas in Spike Dethman's collection come in the program AKA. This program creates an "alias" for a GEOS application which, when double-clicked, starts the real one up for you. Big deal, you say? It *is* a big deal when you see what that alias will do for you. When you create the alias in the first place, you are given a number of options which you can set for that program. For example, you can create an alias for geoWrite which will always look for and run the version of geoWrite on the fastest drive, regardless of which drive you double-click the alias from. If you have a copy of your application on a RAM device, that is the copy that the alias will run. It will also look to faster disk drives before slower ones. You can also tell it to always save the data files to RAM or always save to a real disk. Essentially, AKA creates a small loader for your application which is set to run that application as efficiently as possible. The concepts involved are a bit tricky, but there is a documentation file included which is very thorough and easy to understand.

GEOS artists and desktop publishers will appreciate Paint Rotate and Click Pix, two more interesting programs in this collection. With Paint Rotate, you can rotate, mirror, or invert an entire geoPaint image in one pass. This sure beats scrolling, cutting, and pasting bits and pieces of the page with that small geoPaint edit window. The process takes a while, even on a RAM device, but it's certainly faster than doing the job manually. Click Pix creates a stand-alone application from a geoPaint image which can be viewed without having geoPaint available. You can scroll through the image as well.

Even more exciting for the graphics enthusiast is KoalaVert. As the name suggests, this utility converts multi-color images into GEOS. The graphics mode of GEOS is not compatible with that of a Koala file, so some processing is necessary to create an acceptable image. What KoalaVert does that makes it such a powerful tool is to let you substitute patterns for colors. Okay, granted, that's been done before. But KoalaVert lets you choose your color replacement patterns individually, color by color. You can fine tune the way the image will look by changing the patterns or even by leaving colors out completely. This program is easily the best of its kind.

By now you can see why I was so excited to find this collection of utilities. Spike's programs represent first class, state of the art GEOS. They are exceptionally user friendly and include a lot of extra options and capabilities. I haven't even mentioned the other programs it includes: geoCrypt, which encrypts individual data files to keep them inaccessible to prying eyes; Envelope, a desk accessory which makes it ridiculously easy to print out envelopes; and RAMBoot, an improved version of the Reboot program which correctly handles your disk drives, even if you've swapped their numbers around a few times. All of these programs are very well designed and written.

I left Lansing satisfied. There were still great things happening in the GEOS universe. I had glimpsed a few miracles still to come. I had found a copy of a game I'd always wanted. And I had met a lot of friendly, helpful people who share my fondness for those wonderful Commodore 8-bit machines and the GEOS system. If you have a Commodore Users group in your area, I encourage you to find out about getting involved. You'll learn a lot and make some great friends.

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GEO PROGRAMIST

by Maurice Randall

INPUT FILENAME BECOMES SELECT FILENAME...

In Issue 7 we learned how to create a basic file requester, but that one would only work with a single drive system. It had no provisions for selecting anything but the currently active drive. Let's stick some icons in there now and give the user the full use of his system.

Before we get too far here, let's make sure that we understand or remember a few important points. There is a GEOS variable known as 'curDrive'. By examining the value contained there, we can tell which drive is currently being used. If your program is going to be capable of doing any switching between drives, it is important to read this value when your program is first started. When your program is ready to exit, you should make sure that this drive is once again the active drive so that the user will exit back to the same drive that was used to start your program. Chances are that the Desktop, or an alternative, is on that drive or is on the sister drive. Remember that GEOS will look to drives A or B for the Desktop, unless the active drive is C or D, in which case it will look to those two drives for the Desktop. The only time when restoring the original drive would not be necessary would be if your program is intended to exit to a different drive.

So, in the first stages of your program, save curDrive to one of your own variables such as with the following:

```
...
  MoveB curDrive,loadDrive  ;make a note of the current drive.
...

loadDrive:
  .block 1
```

Then, when ready to exit to the Desktop, use the following code:

```
...
  lda loadDrive          ;get the drive we were loaded from.
  jsr SetDevice          ;make it the current device.
  jmp EnterDesktop       ;and exit.
```

Your program will promptly return control to the GEOS Kernal, which in turn will open the disk and search for the Desktop. There was no error checking in that routine. We could have checked the x register for a non-zero value after the call to SetDevice, but chances are good that the drive is still there. If you make your program capable of adding or removing drives, then the error checking should be included.

Since we're creating a file requester to be included in our program, chances are good that the user will be opening the different drives that are on the system. Restoring the original drive is important, or you might leave the user out in the cold when GEOS tries to find the Desktop on drive C. The only solution then is to reboot. Needless to say, your program might not get used a second time.

Drive Those Icons In

Let's now add the drive icons and an OPEN icon to the file requester that we created in Issue 7. The first thing that must be done is to draw some icons using geoPaint. We'll draw some simple icons here, but there's no reason why you couldn't make these more elaborate. Draw 8 separate icons and make them each 16 pixels high and 16 pixels wide. Why 8 icons? We need 4 'off' icons and 4 'on' icons. Start by drawing the off icons and then copy and invert them to create the on icons. When the user sees the four icons in the file requester, there will be one that is always highlighted, or 'on', to indicate the active drive and the rest will be 'off' but will let the user know which drives are available. If you want, just draw some simple framed rectangles with a letter in the middle of each one.

ERROR CORRECTIONS

Some errors crept into the program listing titled Example 1 that appeared in Issue 7's installment of GEOPROGRAMIST. Several of the labels used in the example program contained a dollar sign ($) where an underscore (_)should have appeared. There was also a right curly-bracket (}) where a vertical bar (|) should have been. Furthermore, some of the text of the column itself also reflected these errors when referencing the affected labels. The following is a corrected version of the example program.

Example 1

```
DBTable:
 .byte DEF_DB_POS | 1

 .byte CANCEL
 .byte DBI_X_2
 .byte DBI_Y_2

 .byte DBGETFILES
 .byte 4
 .byte 4

 .byte 0
```


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With that done, let's get them into the source code. Copy each icon into a photo album and then open up geoWrite and transfer them to your source code. When you paste them into your source, put a label just before each photo scrap. You are going to tell geoAssembler where to find each icon. I might want to mention one of those little "things to remember" here. When you paste in a photo scrap like this, make sure there is at least one blank line before and after the scrap. This is one of those little glitches in geoAssembler. Name your labels appropriately, such as OnAIcon, OffAIcon, OnBIcon, etc.

Let's look at the source code accompanying this article. You'll notice that the table for our dialogue box has increased in size because we've added another system icon. This is the OPEN icon. The dialogue box will be used to open a file for use with your program, so this icon should be appropriate. Alternatively, you could use the OK icon instead—it's up to you.

A little farther down in the dialogue box table, you'll see four more new entries. These identify four 'user' icons. These are icons that you can define for your own purpose. In our case, these will be our drive icons. When GEOS draws the dialogue box, it will look at these entries in the table and act accordingly. Let's look at one of the entries.

```
.byte DBUSRICON
.byte DBI_X_2
.byte DBI_Y_0+20
.word ADriveTable
```

The first byte identifies the entry as a user icon. The next byte is the horizontal location within the dialogue box to place this icon, followed by the vertical location. These locations are offsets from the upper left corner of the dialogue box, remember. GEOS constants are used in this example, but you could substitute any value that you should desire if you wanted to rearrange the looks of the DB. The last two bytes form a pointer to another table. This table will tell GEOS what to do with the icon. Let's take a look at one of those tables.

```
ADriveTable:
  .word OffAIcon
  .byte 0,0
  .byte 2,16
  .word IconADrive
```

First is the label. The next two bytes you should recognize. They point to one of your photo scraps. Then we have two zero bytes. Normally these would be the horizontal and vertical locations of the icons, but they have already been defined, so the value here is meaningless. The next two bytes indicate the width in bytes followed by the height in pixels of the icon.

Now let's look at the routine that sets up the dialogue box itself. In our example, we are calling this routine SelectFile. This could be called from anywhere within your program to have the user select a file from one of the drives. The routine first sets up the pointers to the icons according to the drives that are online so that the user may correctly select the desired drive. If you study the comments in the source code, you will easily understand what is taking place. It runs through a loop to set pointers either to the 'off' or the 'on' icons or a zero pointer if the drive is not being used at all.

Now, when GEOS draws the dialogue box and looks at these four tables that are pointed at, it will also draw the icons that are pointed at, that is, 'if' any icons are pointed at. This is how we can tell GEOS not to draw an icon. After all, we wouldn't want an icon representing a drive that wasn't there.

(text continues on page 41)

Dialog Box Source Code Listing

```
;this is the main DB routine that can be
;called from within an application. It will
;return with r0L holding a value of #OPEN
;if the user selected a file and r5 will
;also point to the selected filename.

SelectFile:
 5$
   LoadB nameBuffer,#0      ;begin with no filename.
   ldx #8
 10$
   lda iconLTable-8,x       ;setup r0 to point to
   sta r0L                  ;an icon table
   lda iconHTable-8,x
   sta r0H
   lda driveType-8,x        ;is this drive in use?
   beq 30$                  ;branch if not.
   cpx curDrive             ;is it the current drive?
   bne 20$                  ;branch if not.
   lda onLTable-8,x         ;load r1 with a pointer
   sta r1L                  ;to an 'on' icon.
   lda onHTable-8,x
   sta r1H
   bra 40$
 20$
   lda offLTable-8,x        ;load r1 with a pointer
   sta r1L                  ;to an 'off' icon.
   lda offHTable-8,x
   sta r1H
   bra 40$
 30$
   LoadW r1,#0              ;load r1 to point to nothing.
 40$
   ldy #0
   lda r1L                  ;and place the pointer
   sta (r0),y               ;where it belongs.
   iny
   lda r1H
   sta (r0),y
   inx
   cpx #12                  ;have we done 8-11 yet?
   bne 10$                  ;branch until so.
   LoadB r7L,#7             ;list application data files.
   LoadW r5,#nameBuffer     ;point to a buffer for the filename.
   LoadW r10,#0             ;list all data files.
   LoadW r0,#DBTable        ;point to the main DB table.
   jsr DoDlgBox             ;and give the job to GEOS.
   lda r0L                  ;did the user click on
   cmp #20                  ;a drive icon?
   beq 5$                   ;branch if so to restart.
   cmp #OPEN                ;how about the OPEN icon?
   beq 80$                  ;branch if so.
   cmp #CANCEL              ;how about the CANCEL icon?
   bne 5$                   ;branch if not. What else was there?
 80$
   rts                      ;the calling routine can now
                            ;also check r0L and r5 still
                            ;points at nameBuffer.
```


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```
nameBuffer:
   .block 17



;these tables merely aid in setting up the
;pointers for the dialog box.

iconLTable:
   .byte [ADriveTable,[BDriveTable
   .byte [CDriveTable,[DDriveTable
iconHTable:
   .byte ]ADriveTable,]BDriveTable
   .byte ]CDriveTable,]DDriveTable
onLTable:
   .byte [OnAIcon,[OnBIcon
   .byte [OnCIcon,[OnDIcon
onHTable:
   .byte ]OnAIcon,]OnBIcon
   .byte ]OnCIcon,]OnDIcon
offLTable:
   .byte [OffAIcon,[OffBIcon
   .byte [OffCIcon,[OffDIcon
offHTable:
   .byte ]OffAIcon,]OffBIcon
   .byte ]OffCIcon,]OffDIcon



;this is the main dialogue box table.

DBTable:
   .byte DEF_DB_POS | 1

   .byte OPEN
   .byte DBI_X_2
   .byte DBI_Y_0

   .byte CANCEL
   .byte DBI_X_2
   .byte DBI_Y_2

   .byte DBGETFILES
   .byte 4
   .byte 4

   .byte DBUSRICON
   .byte DBI_X_2
   .byte DBI_Y_0+20
   .word ADriveTable

   .byte DBUSRICON
   .byte DBI_X_2+3
   .byte DBI_Y_0+20
   .word BDriveTable

   .byte DBUSRICON
   .byte DBI_X_2
   .byte DBI_Y_0+40
   .word CDriveTable

   .byte DBUSRICON
   .byte DBI_X_2+3
   .byte DBI_Y_0+40
   .word DDriveTable

   .byte 0


;these are tables that are pointed at by the
;user icons from the main DB table. The first
;.word value in these tables gets changed when
;the DB routine is called.

ADriveTable:
   .word OffAIcon
   .byte 0,0
   .byte 2,16
   .word IconADrive

BDriveTable:
   .word OffBIcon
   .byte 0,0
   .byte 2,16
   .word IconBDrive

CDriveTable:
   .word OffCIcon
   .byte 0,0
   .byte 2,16
   .word IconCDrive

DDriveTable:
   .word OffDIcon
   .byte 0,0
   .byte 2,16
   .word IconDDrive


;these are the routines that are called
;when the user clicks on one of the
;drive icons.

IconADrive:
   lda #8
   .byte $2c
IconBDrive:
   lda #9
   .byte $2c
IconCDrive:
   lda #10
   .byte $2c
IconDDrive:
   lda #11
   jsr SetDevice
   jsr OpenDisk
   LoadB sysDBData,#20
   jmp RstrFrmDialog
```


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```
;these are the photo scraps that are to be
;used for the drive icons. See the body of
;the article for instructions on how to
;create these icons.

OnAIcon:
```

```
OffAIcon:
```

```
OnBIcon:
```

```
OffBIcon:
```

```
OnCIcon:
```

```
OffCIcon:
```

```
OnDIcon:
```

```
OffDIcon:
```

If the drive isn't available, make the first two bytes in the table equal to zero and GEOS will ignore it.

Now that the dialogue box is ready for GEOS to draw, the GEOS routine DoDialogBox will take it from here. GEOS is now in control until the user clicks on an icon. If either the OPEN or CANCEL icons are clicked on, GEOS will close the dialogue box and restore the screen. If one of the drive icons are clicked on, the appropriate routine as listed in one of the four icon tables will be called. And as you can see in the listing, they each end up going into the same routine in our case. All we are interested in here is to know which icon was clicked on and to open that particular drive. For instance, if drive A is clicked on, the routine IconADrive is called and drive A will be opened. At the end of the routine, the GEOS routine RstrFromDialog gets called to exit the dialogue box. If the routine ended with an rts, it would return control to the dialogue box. In our case, we want to exit the DB and then restart it so that GEOS will redraw the drive icons showing the new drive selection and also to bring up a new directory listing.

So, when control returns from the dialogue box, in SelectFile, the value in r0L is checked. If it contains either #OPEN or #CANCEL, we know that one of the system icons was clicked on and we will end the routine. In our example, this is the only way that SelectFile will end. Either the user selects a file or cancels the request. The routine that calls SelectFile can also check the value at r0L since it is not being altered yet and act accordingly. If one of the drive icons was clicked on, r0L will contain a #20 instead because this is what was loaded into sysDBData when the routine IconADrive was called. We could actually use any value greater than 10 here. RstrFromDialog will transfer the value from sysDBData into r0L when closing the DB. You will also notice that IconADrive opened the desired disk for us. No error checking is done on the disk since none is needed. If there is no disk in the drive, the user will simply see an empty file listing and will likely select a different drive.

Whenever your program needs to have the user select a file from one of the drives, you merely check r0L to see if it contains #OPEN. If so, then you should have a valid filename pointed at by r5. If something went wrong in the selection, r5 might point to a zero byte. Treat this the same as if the user clicked on CANCEL since a valid filename has not been selected yet.

Ready For The Test

Type in the source from the listing here and create a dummy application to test it out. The following routine will do just nicely:

```
DummyApplication:
   MoveB curDrive,loadDrive
   jsr SelectFile
   lda loadDrive
   jsr SetDevice
   jmp EnterDesktop

loadDrive:
   .block 1
```

If everything went OK, you can click on your new application from the Desktop and you will be presented with a dialogue box and a list of files.

You now have a good starting point for a file requester. By now, you should have figured out that you could expand on this and include additional features such as the name of the disk that is in the current drive, or possibly another DB that would pop up when an error occurs. If you make the DB larger, you could add a few more icons to control other functions.

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BASIC INSTINCTS

by Gene Barker

SCREEN I/O TECHNIQUES: PART 2

In this installment of BASIC Instincts we'll use Commodore BASIC v2 to create two new user interface subroutines. First we'll create a Lightbar subroutine which makes navigating menus easier. Then we'll create a Custom Cursor subroutine which gives us precise control of the cursor (unlike the cursor we used in Part I). With these new subroutines we'll be able to make our BASIC programs even more user friendly. Let's get to work!

Lightbar

What if you had a list of options such as: enter data, clear data, retrieve data, or quit program? How in BASIC would you ask the user? Using some of the skills we learned from Part I, we might code it like:

```
100 PRINT"(E)NTER DATA"
105 PRINT"(C)LEAR DATA"
110 PRINT"(R)ETRIEVE DATA"
115 PRINT'(Q)UIT PROGRAM"
120 GET X$:IF X$="" THEN 120
125 IF X$="E" THEN enter data
130 IF X$="C" THEN clear the data
135 IF X$="R" THEN retrieve the data
140 IF X$<>"Q" THEN 120
145 END
```

With the above code, the user must type the first letter of the option in order to move on. If the program got a character it did not recognize, it would go grab another one. Wouldn't it be neat if we could print the list of options, highlight the first option, let the user move the highlight up or down the list with the cursor keys, and have the return key select the highlighted option? This way the user would only have to use the cursor and return keys navigate through our menus. Hence, making our program easier to use. This method of menu navigation is known as a Lightbar system.

The heart of our Lightbar subroutine lies with the following code:

```
X1=40*(XR+XD-1)+XC+55296
FOR XI=0 TO XW-1
  POKE X1+XI,XH
NEXT
```

In the first line we calculate X1. X1 is the memory location which contains the color of the first character of the highlighted option. XR (row) and XC (column) point to the upper left hand corner of the Lightbar menu. XD (option) is the currently highlighted option; where the first option equals one, the second two, the third three, and so on. So the actual row number equals (XR+XD-1). Since screen memory is organized as one big row of columns, we multiply the number of rows (XR+XD-1) by forty (the number of columns per row) and add XC to get the exact position of the highlighted option. Then we add 55,296 which is the start of the Color Memory Map. If we wanted to point to the character value instead of its color, we would add 1,024 which points to the start of Screen Memory Map. The Color and Screen Memory Maps can be found in your Commodore manual. The FOR loop POKE's the highlight color to the Color Memory Map and highlights the current option. XW is the width of the menu in characters. For more information, review the Lightbar example in the listing. Remember to use Screen Color Codes for XT (text color) and XH (highlight color).

Screen Color Codes

BLACK	0	ORANGE	8
WHITE	1	BROWN	9
RED	2	L. RED	10
CYAN	3	D. GRAY	11
PURPLE	4	M. GRAY	12
GREEN	5	L. GREEN	13
BLUE	6	L. BLUE	14
YELLOW	7	L. GRAY	15

Custom Cursor

There are times when BASIC's cursor just won't do. For example in the Input String subroutine from Part I, have you ever noticed how the cursor occasionally leaves a reverse space after it's turned off? While this doesn't hurt anything, it does look strange and may distract the user. To solve this irregularity we could use a Custom Cursor.

To create a Custom Cursor we use the same technique as above for manipulating memory directly. Except this time, we use the Screen Memory Map; the map which contains the value of each character on the screen. You will notice that the calculation of X1 is almost the same. The only major difference is that we add 1,024 (instead of 55,296) to our location calculation which is the start of the Screen Memory Map. There is one more trick we use. Examine the following code.

```
X2=PEEK(X1)
X2=X2+128
IF X2>255 THEN X2=X2-256
POKE X1,X2
```

In the first line, we set X2 equal to the value of the original character located at X1 (which we calculated earlier). In the next two lines we reverse the

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character by adding 128 to X2, being careful to keep the values between 0 and 255. And finally, we POKE the reverse character value X2 to the Screen Memory Map. By doing this we have reversed the character at X1. The Custom Cursor routine uses this method for flashing the cursor. Please review the example included in this issue's program listing.

The Subroutines

The type-in program includes the two following subroutines:

ENABLE LIGHTBAR (SUB) - Controls user interaction with a Lightbar menu

SHOW CUSTOM CURSOR (SUB) - Displays a Custom Cursor until user types a key

At the top of the program is a sample call for each subroutine. The subroutines are written for readability, not speed. You will find that they are well documented and easy to read. You are free to use these subroutines in your own programs (commercial included).

Notes

As you type in this issue's program, take it one section at a time. Try to get a general idea of what the section is trying to accomplish. See if you can follow how the section is using its variables. If you see an unfamiliar BASIC statement, take a quick look at it in your BASIC manual. If you are still confused, move on to the next section; often times the next section helps explain the previous one. Above all, don't forget to BACKUP your work frequently.

Entering The Program

Before entering this issue's program, load and run the CHK-LIST utility (located elsewhere in this issue). CHK-LIST insures that you enter the program correctly the first time. Also, remember to SAVE the program before you attempt to RUN it. It never hurts to be safe.

INPUT2.BAS

```
5000 100 REM--------------------------------
6DC2 105 REM COMMODORE WORLD MAGAZINE
C67C 110 REM BASIC INSTINCTS W/GENE BARKER
051D 115 REM SCREEN I/O TECHNIQUES PART II
0E6B 120 REM
2D24 125 REM (C)1995 CREATIVE MICRO DESIGNS
92AD 130 REM--------------------------------
1315 135 REM-
58DC 140 REM ENABLE LIGHTBAR (SUB) EXAMPLE
C243 145 REM-
6D2D 148 POKE 53280,11:POKE 53281,0
21A0 150 PRINT"{CLEAR/HOME}{CRSR DN}{CRSR RT}
     {WHT}LIGHTBAR EXAMPLE"
56B0 152 PRINT"{CRSR DN}{CRSR RT}{RVS ON}ENTE
     R DATA{5 SPACES}"
08F0 154 PRINT"{CRSR RT}{RVS ON}CLEAR DATA{5
     SPACES}"
83A7 156 PRINT"{CRSR RT}{RVS ON}RETRIEVE DATA
     {2 SPACES}"
7154 158 PRINT"{CRSR RT}{RVS ON}QUIT PROGRAM{
     3 SPACES}"
7834 162 PRINT"{CRSR DN}{CRSR RT}SELECT OPTIO
     N USING THE CURSOR KEYS."
5079 164 PRINT"{CRSR RT}THEN PRESS [RETURN]"
8453 166 PRINT"{CRSR DN}{CRSR RT}({BACK ARROW
     }) TO ABORT"
4EE2 200 XR=3:XC=1:XW=15:XN=4:XT=1:XH=5:XD=1
1D33 202 GOSUB 10600
830F 204 PRINT"{CRSR DN}{CRSR RT}YOU SELECTED
      OPTION:"XO
5291 300 REM-
2D04 305 REM CUSTOM CURSOR (SUB) EXAMPLE
4936 310 REM-
4572 315 PRINT
2E9F 320 PRINT"{CMDR A}{10 SHFT *}{CMDR R}{SH
     FT *}{CMDR S}"
BBD9 322 PRINT"{SHFT -}{CYAN}ABCDEFGHIJ{WHT}{
     SHFT -} {SHFT -} CUSTOM CURSOR EXAMPLE"
1624 324 PRINT"{SHFT -}{LGRN}KLMNOPQRST{WHT}{
     CMDR Q}{SHFT *}{CMDR X}"
59EF 326 PRINT"{SHFT -}{YEL}UZWXYZ1234{WHT}{S
     HFT -}"
1B3D 328 PRINT"{CMDR Z}{10 SHFT *}{CMDR X}"
C0E0 330 PRINT"{CRSR DN}{CRSR RT}USE CURSOR K
     EYS TO SELECT CHARACTER"
7316 331 PRINT"{CRSR RT}PRESS [RETURN] TO HIG
     HLIGHT"
B22D 332 PRINT"{CRSR RT}({BACK ARROW}) TO ABO
     RT"
9AA5 334 XR=16:XC=1:XB=15
DA71 336 P=(XR*40)+XC+11+1024
2D7E 338 POKE P,PEEK((XR*40)+XC+1024)
7E01 340 GOSUB 10900
57E7 342 IF XX$<>"{CRSR RT)" THEN 350
B198 344 : XC=XC+1
541B 346 : IF XC>10 THEN XC=1
1C11 348 : GOTO 338
588A 350 IF XX$<>"{CRSR DN)" THEN 358
CFD2 352 : XR=XR+1
3AAF 354 : IF XR>18 THEN XR=16
4FEF 356 : GOTO 338
D6AD 358 IF XX$<>"{CRSR L}" THEN 366
D794 360 : XC=XC-1
9339 362 : IF XC<1 THEN XC=10
4FEF 364 : GOTO 338
EAF1 366 IF XX$<>"{CRSR UP}" THEN 374
A9DE 368 : XR=XR-1
D699 370 : IF XR<16 THEN XR=18
1C11 372 : GOTO 338
CEE8 374 IF XX$<>CHR$(13) THEN 384
DCEA 376 : H=X3+128
DE76 378 : IF H>255 THEN H=H-256
41C3 380 : POKE X1,H
1C11 382 : GOTO 338
AB57 384 IF XX$<>"{BACK ARROW}"THEN 340
2ADC 386 : PRINT"{CRSR DN}{CRSR RT}END OF EXA
     MPLES."
BCD1 388 : END
1E7B 10600 REM------------------------------
F959 10605 REM ENABLE LIGHTBAR (SUB)
3D5A 10610 REM
17FF 10615 REM GIVEN
E19A 10620 REM
7DCD 10622 REM XR - CURSOR ROW POSITION
B1B9 10625 REM       (0-24)
F4A2 10627 REM XC - CURSOR COLUMN POSITION
4C32 10630 REM       (0-39)
B89F 10635 REM XW - WIDTH OF EACH MENU ITEM
B2AA 10640 REM       IN CH'S
9DA6 10645 REM XN - # OF ITEMS IN THE MENU
B4F8 10650 REM XT - TEXT COLOR OF MENU
29AE 10655 REM XH - HIGHLIGHT COLOR OF MENU
A70B 10660 REM XD - DEFAULT ITEM SELECTION
79AF 10665 REM       (1 TO XL)
BF54 10670 REM
F6E6 10675 REM RETURNS XO - ITEM SELECTED
```


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INPUT2.BAS *(cont.)*

```
20F7 10680 REM
9F68 10685 REM NOTE: IF XO<0 THEN NO ITEM
43D9 10690 REM WAS SELECTED
8495 10695 REM------------------------------
3C0D 10700 REM-
686A 10705 REM HIGHLIGHT CURRENT SELECTION
27AA 10710 REM-
E53D 10715 X1=40*(XR+XD-1)+XC+55296
8173 10720 FOR XI=0 TO XW-1
5A71 10725 : POKE X1+XI,XH
2E9C 10730 NEXT
27AA 10750 REM-
7F34 10755 REM INPUT LOOP
AF50 10760 REM-
4C96 10762 GET XX$:IF XX$="" THEN 10762
C306 10764 : IF XX$<>"{BACK ARROW}" THEN 1077
     0
B710 10766 :    XO=-1
73A5 10768 :    RETURN
37C0 10770 : IF XX$<>CHR$(13) THEN 10776
D5F3 10772 :    XO=XD
B263 10774 :    RETURN
CAEA 10776 : IF XX$<>"{CRSR DN}" THEN 10790
FE47 10778 :    FOR XI=0 TO XW-1
F6DE 10780 :      POKE X1+XI,XT
F2E7 10782 :    NEXT
6107 10784 :    XD=XD+1
8E61 10786 :    IF XD>XN THEN XD=1
E48C 10788 :    GOTO 10700
2F18 10790 : IF XX$<>"{CRSR UP}" THEN 10762
CE1A 10792 :    FOR XI=0 TO XW-1
F486 10794 :      POKE X1+XI,XT
C59C 10796 :    NEXT
579B 10798 :    XD=XD-1
D325 10800 :    IF XD<1 THEN XD=XN
F795 10802 :    GOTO 10700
6FC6 10900 REM------------------------------
AAA9 10905 REM SHOW CUSTOM CURSOR (SUB)
CF06 10910 REM
C0E4 10915 REM GIVEN
50A5 10920 REM
9114 10925 REM XR - CURSOR ROW POSITION
2AAE 10930 REM      (0-24)
86C3 10935 REM XC - CURSOR COLUMN POSITION
79D9 10940 REM      (0-39)
9A3E 10945 REM XB - BLINK RATE (1-50) FAST
B2F5 10950 REM      TO SLOW
7A38 10955 REM
25FA 10960 REM RETURNS
E59B 10965 REM
E1A5 10970 REM XX$ - ASCII VALUE OF THE LAST
4230 10975 REM       KEY PRESSED
500F 10980 REM------------------------------
DA6B 11000 REM-
3E57 11005 REM CALCULATE AND SHOW CUST CRSR
9860 11010 REM-
744F 11015 X1=(XR*40)+XC+1024
553E 11020 X2=PEEK(X1):X3=X2
F506 11025 X2=X2+128
5E02 11030 IF X2>255 THEN X2=X2-256
09BD 11035 POKE X1,X2
82CD 11040 FOR XI=1 TO XB
BDC0 11045 : GET XX$
519E 11050 : IF XX$<>"" THEN XI=XB
D8C1 11055 NEXT
FB60 11060 IF XX$="" THEN 11025
199C 11065 POKE X1,X3
EC16 11070 RETURN
```

Always SAVE your work before trying to RUN it.

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How to Type In Program Listings Appearing in Commodore World

While *Commodore World* currently doesn't make it a habit of publishing type-in programs, a number of our columns do require entering sample routines. For this purpose, we have created our CHK-LIST utility for the Commodore 64 and 128. This utility uses a 16-bit CRC checksum method to verify that you have correctly entered each program line, and that each of the characters in the program lines are in the correct order.

You'll notice that program listings appear with a column of values to the left of the program lines. These values are the CHK-LIST values and are not to be entered as part of the program. A similar set of values are generated by the CHK-LIST utility to allow you to verify that everything has been entered correctly.

Enter the CHK-LIST program from BASIC. You can use either a C-64 or a C-128 computer. If you use a C-128, it can be in either 64 or 128 mode. Be sure to enter each line carefully to avoid mistakes—until you actually have CHK-LIST working, finding errors in program entry won't be easy. After you have finished entering the program, be sure to SAVE a copy to disk before you attempt to RUN it, just in case. If you aren't familiar with how to save a program to disk, you can use the following command:

```
SAVE"CHK-LIST",8
```

To use CHK-LIST, load it into your computer and type RUN. Make sure that any program you are currently working on is saved first, or start CHK-LIST before you begin typing in a new program. After you have CHK-LIST in memory and running, type NEW. You may now either load or begin typing the program you wish to have CHK-LIST check on. Whenever you want to check your program, type in the appropriate SYS command given below:

C-64 or C-128 in 64 mode:	`SYS49152`
C-128 in 128 mode:	`SYS4864`

Note that when typing in listings, some special characters will appear in braces. For example, {CLR/HOME} means that you should enter the Clear key, which is done by holding down the SHIFT key while you press the HOME key. Other times you may see a number ahead of the key name, such as {3 SPACES} or {5 CRSR L}. This means you should press the key indicated the number of times shown. Most special keys are easy to identify, since the text shown will generally match the text on the key. Exceptions are the space bar {SPACE}, and cursor keys which include directions ({CRSR UP}, {CRSR DN}, {CRSR L} and {CRSR RT}). Be sure to use the correct key combinations for color keys, such as <CTRL><2> for {WHT}.

CHK-LIST

```
A454 10 F=ABS(PEEK(65533)=255):M=49152:IFFTHE
     NM=4864
6E2F 12 C=Ø:PRINT"{CLR/HOME}WORKING";
E35Ø 2Ø READD:IFD=-256THEN4Ø
AD2Ø 3Ø C=C+D:IFD<ØANDF=ØTHEN2Ø
3316 31 IFD<ØTHEND=Ø-D:M=M-1
Ø7FØ 32 POKEM,D:M=M+1:PRINT".";:GOTO2Ø
578A 4Ø PRINT:READCK:IFC<>CKTHENPRINT"ERROR I
     N DATA STATEMENTS!":END
Ø679 5Ø PRINT"DONE.":END
8D92 6Ø :
E7FE 49152 DATA 165,43,-45,133,251,165,44,-46
     ,133,252
B2AE 49160 DATA 169,Ø,141,36,193,-2Ø,169,147,
     32
CD5Ø 49168 DATA 21Ø,255,32,194,192,-19,160,Ø,
     14Ø
C9CD 49176 DATA 37,193,-2Ø,177,251,133,253,2Ø
     8,3
2Ø58 49184 DATA 238,37,193,-2Ø,2ØØ,177,251,13
     3,254
EA9C 49192 DATA 2Ø8,3,238,37,193,-2Ø,173,37,1
     93,-2Ø
6C15 49200 DATA 2Ø1,2,2Ø8,1,96,2ØØ,177,251
E7ØE 49208 DATA 17Ø,2ØØ,177,251,32,2Ø5,-5Ø,18
     9,-142,169
6795 49216 DATA 6,133,211,-236,169,61,32,21Ø,
     255
F8ØF 49224 DATA 169,32,32,21Ø,255,16Ø,2,177
9735 49232 DATA 251,32,213,192,-19,2ØØ,177,25
     1,32
Ø734 49240 DATA 213,192,-19,2ØØ,177,251,24Ø,6
     ,32
D99D 49248 DATA 213,192,-19,76,9Ø,192,-19,173
     ,191,192,-19
AC3Ø 49256 DATA 32,167,192,-19,173,19Ø,192,-1
     9,32,167
```

CHK-LIST *(cont.)*

```
B343 49264 DATA 192,-19,169,13,32,21Ø,255,165
     ,253
DF3A 49272 DATA 133,251,165,254,133,252,238,3
     6
A6E2 49280 DATA 193,-2Ø,173,36,193,-2Ø,2Ø1,2Ø
     ,24Ø,3
936E 49288 DATA 76,18,192,-19,162,Ø,189,1,193
     ,-2Ø
8C3A 49296 DATA 24Ø,6,32,21Ø,255,232,2Ø8,245,
     32
EB74 49304 DATA 228,255,2Ø1,13,2Ø8,249,32
6Ø95 49312 DATA 228,255,2Ø8,251,76,8,192,-19,
     72
AØØ1 49320 DATA 1Ø6,1Ø6,1Ø6,1Ø6,32,18Ø,192,-1
     9,1Ø4
FAA2 49328 DATA 32,18Ø,192,-19,96,41,15,17Ø,1
     89
EBFD 49336 DATA 2Ø,193,-2Ø,32,21Ø,255,96,Ø,Ø
E9Ø7 49344 DATA Ø,Ø,169,Ø,141,19Ø,192,-19,141
E8EA 49352 DATA 191,192,-19,169,33,141,192,19
     2,-19,169
A7D7 49360 DATA 16,141,193,192,-19,96,162,8,7
     2
6Ø4Ø 49368 DATA 41,127,77,191,192,-19,141,191
     ,192,-19
D24B 49376 DATA 24,14,19Ø,192,-19,46,191,192,
     -19,144
D52F 49384 DATA 18,173,192,192,-19,77,19Ø,192
     ,-19,141
DCA6 49392 DATA 19Ø,192,-19,173,193,192,-19,7
     7,191,192,-19
6Ø32 49400 DATA 141,191,192,-19,1Ø4,1Ø,2Ø2,2Ø
     8,215
37C5 49408 DATA 96,13,8Ø,82,69,83,83,32
9A2A 49416 DATA 6Ø,82,69,84,85,82,78,62
AC9Ø 49424 DATA 13,13,13,Ø,48,49,5Ø,51
FE71 49432 DATA 52,53,54,55,56,57,65,66
Ø17E 4944Ø DATA 67,68,69,7Ø,Ø,Ø,-256,37944
```


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HARD TIPS

RAMIFICATIONS: RAMLINK PASS-THROUGH PORT MODIFICATION

by Mark Fellows & Doug Cotton

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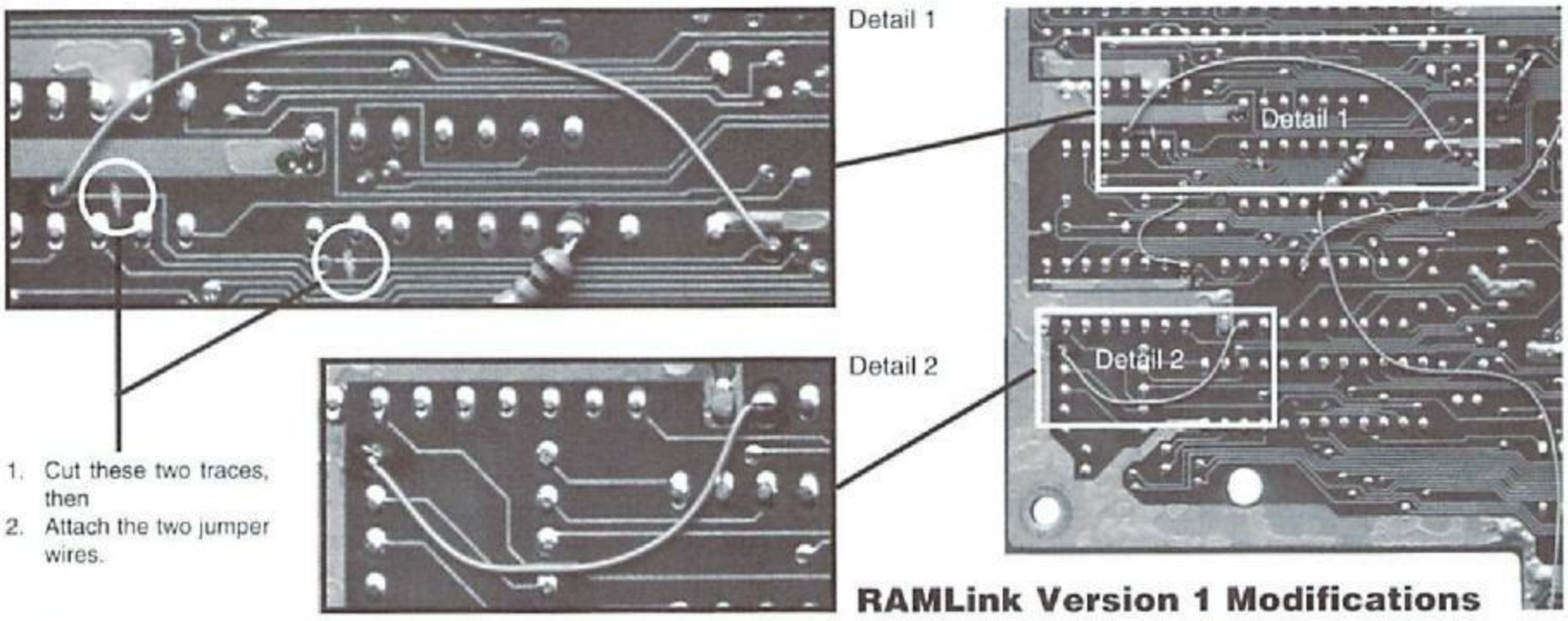
Since CMD's RAMLink was designed to allow either a Commodore REU or a GEORAM to be installed in the RAM Port, and because these two devices use different I/O pages, it was necessary to disable those I/O pages on the Pass-Thru port whenever DIRECT access to the RAM Port was selected to ensure against memory conflicts. Unfortuneately, this means that you can't use a SwiftLink in the Pass-Thru port while maintaining direct access to an REU in the RAM Port.

The modifications in the pictures below show how you can maintain operation of the $DExx I/O space on the Pass-Thru port while using a Commodore REU in the RAM Port in DIRECT mode. In lay terms, that means you can download to your REU directly while using a SwiftLink and RAMLink together. The 'down side' is that your RAMLink will no longer be compatible with a GEORAM, BBGRam, or RAMDrive.

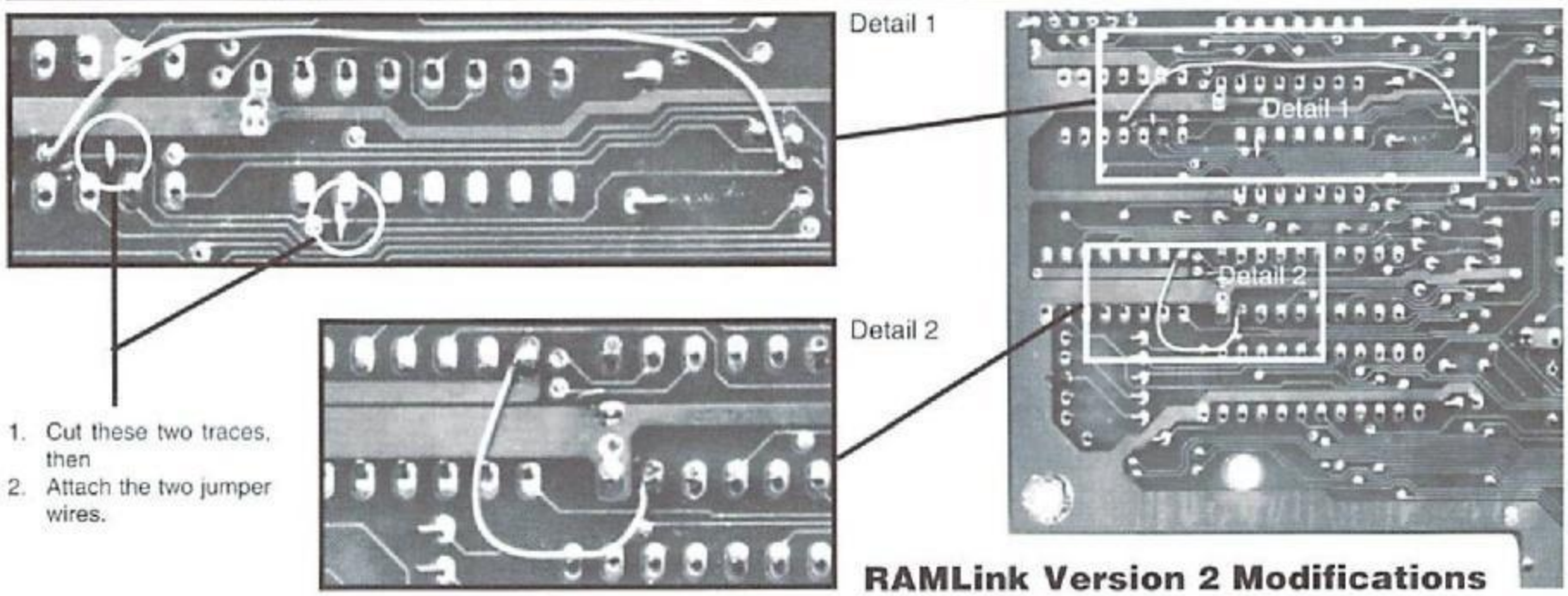
To perform the modifications, you'll need a soldering iron, some solder, a utility knife, wire strippers, and some hookup wire (preferably solid wire-wrap type).

Since there are two versions of RAMLink, two sets of instructions are given. The revision number on the bottom of RAMLink determines the version; revisions beginning with a "2" are version 2. You'll have to disassemble your RAMLink and remove the main circuit board, since the modifications are done on the back of that board in the lower left quarter. Simply make the trace cuts shown in Detail 1, then install the jumper wires shown in Detail 1 and 2. Now reassemble your RAMLink. The DIRECT switch will no longer disable a SwiftLink (set for the factory default).

If you don't have the necessary skills to perform the modifications, CMD can supply a simple replacement chip (P/N: RLDIRECT) that does the same trick for $15.00 plus shipping. This chip will only work if your RAMLink is a version 2, or Revision I (version 1).



RAMLink Version 1 Modifications



RAMLink Version 2 Modifications

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Peripheral Vision

By Jim Butterfield

THE DIRECT APPROACH TO RELATIVE FILES

We're about to explore the wonderful world of relative files. They are marvelous, in that they allow you to go directly to any part of the file and read or write there. They are dangerous, in that they need to be handled with extreme care, or they will not work and may damage other files on your disk.

How They Work.

Conventional files—PRG (program), SEQ (sequential), and USR (user) types—are all set up in the same way (see figure 1). The disk directory tells you where the first block of the file can be found. From then on, each block in the file "chains" to the next one. That's an efficient way to organize a file. But if you wanted to look at data in, say, block 10, the only way to get there is to wade through the first nine blocks. And when you're handling data in this type of file, the only way you can change the file is to copy the whole thing over to a new file.

Relative files—type REL—have a different setup (see figure 2). The directory also points at "side sectors", which act as an index to the data blocks of a file.

When we create a relative file, we define how large each record will be. You don't have to use all the space that is allocated for a record, but you cannot go over the allotted size.

The disk drive does a fair amount of arithmetic when you ask it to "position" to a selected record. For example: suppose a file has been created with a record length of 30 characters, and you ask the disk drive to position to record number 99. First, the drive calculates how many characters from the start of the file it must go: thus, 98 times 30 gives 2940 bytes. There's no record number zero, so the drive subtracts 1 from the 99 before multiplying. Next, the drive knows that there are 254 bytes of data within each block, so it divides 2940 by 254, giving 11 (full blocks) with a remainder of 146 (bytes within the block). The drive now consults the side sector table to find the track and sector location of block 12; it fetches that block and then goes to the 146th byte past the header. Now it's ready to read or write.

It's even more complex than that. Sometimes a record falls across two different data blocks. That's called a "spanning" record, and the disk drive knows how to deal with that, too. But don't let me scare you off. The drive takes care of the details.

Let's Write Relative!

Format a fresh disk. We're about to create a relative file. If you don't have a Commodore 128, be sure that your computer has a "wedge" program in place. We'll need to ask the disk what it's doing several times during this exercise, and the 64 needs a wedge to do this.

I'm going to lay out some important rules about relative files. You'll see these as we proceed. And if you have a 128, I'll give you alternative commands that you may use.

Creating The File.

We will create a relative file called TEST. It will have a record length of 25 characters, which is (ahem!) relatively small. We will do all this with direct commands, although you could put the same commands within a program.

To create a relative file, we must follow these steps: open the file; move to a "minimum" record number; write something; and finally, close the file. There will seem to be errors as we go through this operation, but they are expected and we'll discuss them.

RULE 1

THE FIRST TIME A RELATIVE FILE IS USED, IT MUST BE MADE BIG ENOUGH TO USE MORE THAN ONE DATA BLOCK.

Why? Because the side sector won't be created properly unless we have a minimum of two data blocks. So let's do some arithmetic. We must have more than 254 characters of data (that's the size of a data block); with a record size of 25, this means that we must create a minimum of 11 records in order to make sure the file is created properly. We'll go for an even dozen.

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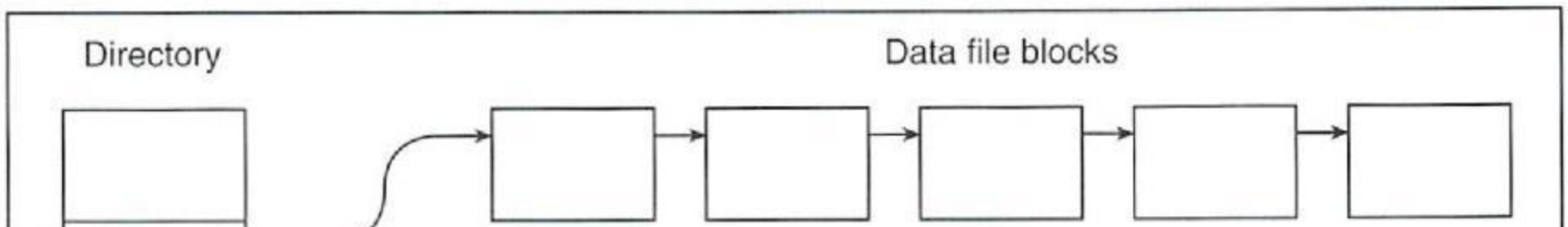


"Conventional" files are arranged so that each data block links to the next one. The directory locates the first block in the chain.

Figure 1

Unless you're going to do the whole operation in Basic 7.0 (on the 128), start by opening the command channel with:

```
OPEN 15,8,15
```

Open the relative file with this command:

```
OPEN 1,8,2,"0:TEST,L,"+CHR$(25)
```
(128 alternative: `DOPEN#1,"TEST,R",L25`)

This command selects logical file number 1 for the file, drive 8, and secondary address 2. Note the secondary address—we will be using it again. The maximum size of a record is 254.

When you press RETURN, the disk light will turn on and stay on. That's normal when you have a file in progress. Now we will instruct the drive to position us at record number 12. It will complain, of course, since at the moment there is no such record.

```
PRINT#15,"P"+CHR$(2)+CHR$(12)+CHR$(0)+CHR$(1)
```
(128 alternative: `RECORD#1,12`)

You'll get a flashing light on the drive; we'll deal with that in a moment. First, let's talk about the above command. We're not sending data to be stored, so this command flows over the command channel. The command is P, and we follow it with the secondary address of the file (NOT the logical file number!). The next two bytes give the desired record number as low byte/high byte. When your record number goes over 255 the value must be split into two bytes: divide by 256, and the low byte (the first one) is the remainder, with the high byte value as the quotient. Finally, that CHR$(1) stuck on the end: that's the "position within the record". NEVER use any value other than one here.

Now, about that flashing light. Ask for the disk status with the wedge command (usually just the '@' character). You'll see that the problem is error number 50: record not present. We expect that: there is no record 12 until we make one. So let's do that.

```
PRINT#1,CHR$(255);
```

We are writing a special character into record 12. As we do so, all the missing records, 1 to 11, will be created.

RULE 2

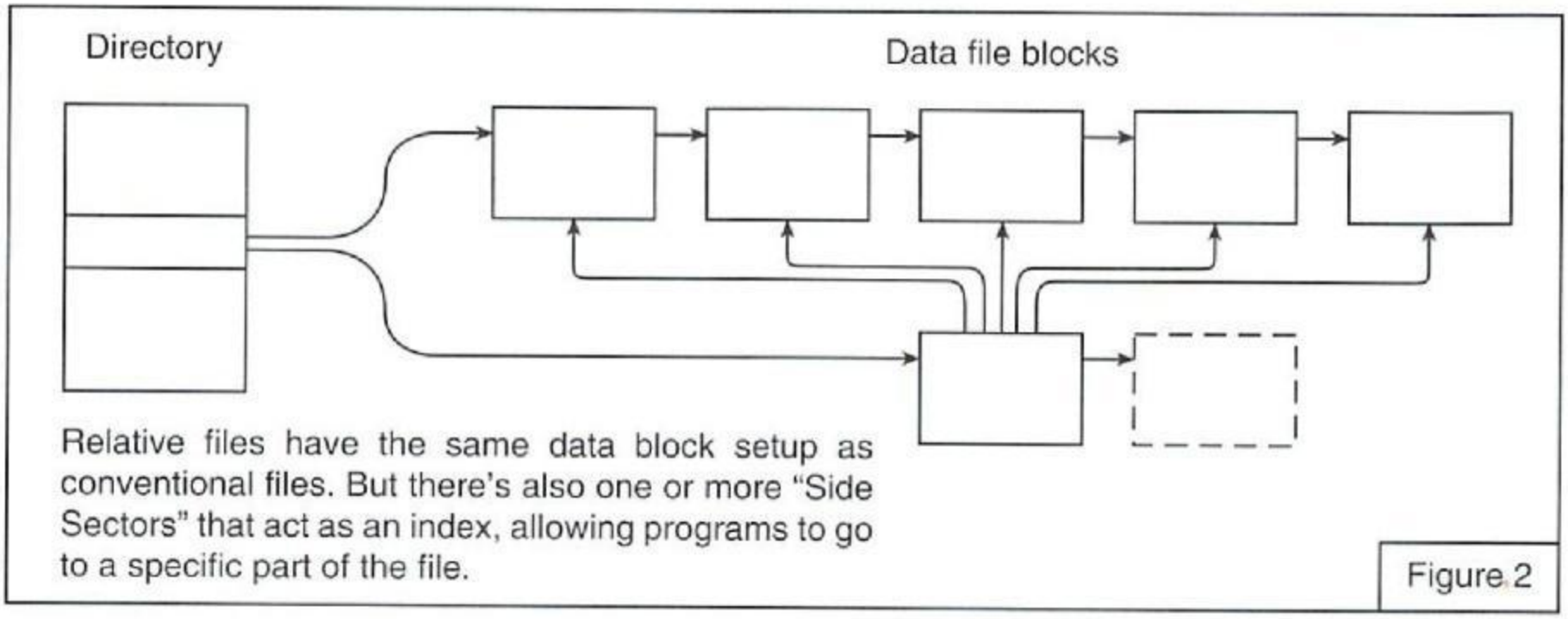
ANY TIME YOU WRITE A NON-EXISTENT RECORD, YOU WILL CREATE IT TOGETHER WITH ANY LOWER-NUMBERED NON-EXISTENT RECORDS.

That's a handy rule. Any time you want to make a relative file bigger, just move to the highest desired record and write something.

RULE 3

EMPTY RECORDS CONTAIN A VALUE OF CHR$(255)

So now the file contains at least 12 empty records; that's more than one



Relative files have the same data block setup as conventional files. But there's also one or more "Side Sectors" that act as an index, allowing programs to go to a specific part of the file.

Figure 2

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

block of data and it would be save to close it. But let's fool around with the various records a little, first. We'll write a few items in various places.

```
PRINT#15,"P"+CHR$(2)+CHR$(7)+CHR$(0)+CHR$(1)
```
(128 alternative: `RECORD#1,7`)
```
PRINT#1,"LUCKY!";
PRINT#15,"P"+CHR$(2)+CHR$(2)+CHR$(0)+CHR$(1)
```
(128 alternative: `RECORD#1,2`)
```
PRINT#1,"DOUBLE";
PRINT#1,"OR NOTHING!"
```

Sometimes I end a PRINT# line with a semicolon—which means we don't put a RETURN behind the data we write—and sometimes I don't. In fact, it doesn't matter much: later, we'll find that INPUT# will collect the record with or without the RETURN.

The last item brings out an interesting point. When writing sequential files, ending a PRINT# with a semicolon will allow us to continue the data with the next PRINT#. Not so with relative files. In the example above, DOUBLE will be written to record 2, and OR NOTHING! will be written to record 3.

RULE 4

ONE PRINT# WILL WRITE EXACTLY ONE RELATIVE FILE RECORD—NO MORE, NO LESS.

But we can put multiple pieces of data within a record if we wish. Try the following.

```
PRINT#15,"P"+CHR$(2)+CHR$(9)+CHR$(0)+CHR$(1)
```
(128 alternative: `RECORD#1,9`)
```
PRINT#1,"HOT"+CHR$(13)+"DOG!";
```

Rule 4 says we will write exactly one record, number 9, with the above command. The record will contain two items (fields), separated by a RETURN character. We'll need two INPUT# commands to read them both.

Wrap It Up

We should close this file sometime soon. But feel free to play around first. You might try writing more records, or even writing over earlier data. Try going a little beyond record 12: you might be surprised to find that we have created slightly more than the twelve records requested. Try expanding the file to a larger size: remember that the trick is to position to a larger record number (say, 30), and then writing something there.

And you're allowed to try breaking some of the rules. Our test file has a maximum record size of 25 characters. If you tried, for example, to write a 30-character string into record number 10, would the data slop over into record 11? (The answer is NO, but you will get an error message).

When you're finished, close the file with CLOSE 1, and the data will be safely wrapped up.

Checking it Out

There are more rules to learn; we'll pick up on them next time. In the meantime, you'd probably like to look at the file you have created.

Here's a program that will show you what's in the file. If you look at it carefully, you will even detect some of the rules that will be introduced next time around. One caution, though: before you write your world-beating relative file program, wait for the next installment: there are a few pitfalls I'd like to warn you about.

Simple Relative File Viewer Program Listing

```
100 OPEN 15,8,15
110 OPEN 1,8,2,"TEST"
120 R=1
130 PRINT#15,"P"+CHR$(2)+CHR$(R)+CHR$(0)+
CHR$(1)
140 INPUT#15,E,E$
150 IF E>0 GOTO 300
160 M=0
170 J=0
180 INPUT#1,X$
190 IF ST=0 THEN M=1
200 PRINT "RECORD";R;
210 IF M=1 THEN J=J+1:PRINT "FIELD";J;
220 IF X$=CHR$(255) THEN X$=" <EMPTY> "
230 PRINT ":";X$
240 IF ST=0 GOTO 180
250 R=R+1
260 GOTO 130
300 CLOSE 1
310 PRINT "RECORD";R;">>STATUS:";E$
320 CLOSE 15
```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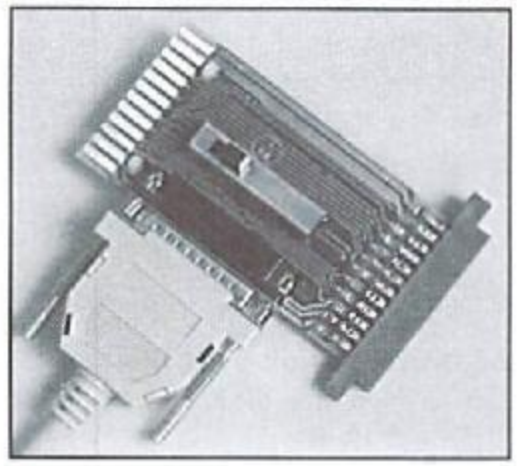
Parallel Print Cable



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Carrier Detect

By Gaelyne Moranec

I CAN SEE YOUR HOME PAGE FROM HERE...

What do Elvis, the IRS, Monty Python and Commodore computing have in common? The Internet. Yes, Elvis is on the Internet—not in person, mind you, (well I've not run into him anyway) but there is a place where you can find out information about Graceland tours and such. No, this isn't going to be yet another boring Internet article you might have read in other magazines. This is going to be something you can enjoy and learn from, even if the topic at first glance might seem that way.

Mention the Internet to some people and they run in the other direction; they think of it as a complex monster of data with weird features and words that seem to make no sense at all. And some really don't, even when you find out what they mean (come back here—I'm just getting to the good stuff!).

The key to the Internet is not what the terminology "means" or stands for; the key is to find out what each feature does and how you can use it. Knowing that FTP stands for File Transfer Protocol doesn't mean much, but if you think of it as a quick easy means of grabbing files to download it doesn't seem as daunting. Other Internet features are much the same way. Once you know what you can do with them and how, it really isn't that much different from other methods of communication, and it's faster.

There are two Internet features that I've found to be very satisfying to use, incredibly EASY, and best of all, FUN. A year or so ago, I wouldn't have dreamed of calling anything having to do with the Internet FUN, but I do so now without

hesitation. Both features have things in common so I'll describe them together.

First lets cover what you'll need to access them. You'll need your computer, of course, and you'll also need a modem and a term program which offers ASCII (sometimes called "Standard") emulation. ANSI and/or VT-100 emulation can also be used, and in some cases is preferred. You'll need a method of accessing the Internet such as through an online service, some of the larger Bulletin Board Systems, an account with a university, or through some of the various freenets. You should be familiar with the service that you use, so you can find your way to the Internet services and go from there.

Once you access the Internet from your service things change a bit, both in the commands you'll use, and in the types of things you can access. So be prepared—it's very much like opening the door to a whole new world.

A Menu is a Menu is... a Gopher?

You say you like things easy? Don't like messing with weird commands that make no sense at all? Then Gophering is for you. Gophering is simply a means of moving through the Internet via simple menu choices, much like when you call a regular BBS and move to the files area to download files, or when you use a menu program that lists different programs to load and run. When you use Gopher on the Internet, you move through different menu options until you reach something that interests you, such as a file to download, or a text file to read. You can also back-track through the previous menus and make other choices.

Gophers begin by offering you a wide range of categories, which depending on your choices, narrow to specific items. When you load a menu program on your computer, it already has the information within the program on where to find the each program listed as well as how the file should be loaded. Internet Gophers operate in the same manner. Gopher menus are set up in advance by whoever it is that creates gopher menus, (presumably the place where the gopher itself is located), and have the commands built into them for each selection offered. Some of the commands can move you through cyberspace and take you from one location to another transparently and without any intervention on your part.

Ok, so a Gopher is a menu that moves you through the Internet. But what practical use is it?

Good question. Recently while writing an

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article, I wanted to mention a specific author and a couple of the books he's written. Unfortunately, I don't own any of the books from one of his two different series, and I felt I should include both series instead of just one. Where to start? I started with the books I have, but they were older and didn't mention the second series. A comment in one book mentioned that the author attended Cambridge University. It was 3 AM so naturally calling my local library to find out what I needed was out of the question. Gee, too bad there aren't all-night libraries like there are convenience stores, I thought. AHA! A light bulb went off in my head—the Internet is open any time of the day or night. I dialed in, found the Internet Gopher area and moved through a series of menu choices to Cambridge University, where I looked through it's library catalogues for the author's name. Within just a few minutes I found my answer. (For the curious, it was Douglas Adams' Dirk Gently series). Other times I've used Gophers to check the weather in Australia just for grins, and have used it to find programs to download just as easily as if I'd called a BBS.

The *Personal* Touch

While reading mail in various usenet newsgroups recently, I've noticed that in the past few months, the number of times I've read comments about World Wide Web, WWW, or have seen what appear to be a different form of EMail addressing have been appearing everywhere, it seems. The "addresses" look like:

http://www.msen.com/~brain

Gee, I'll have to check into these things one of these days, I said to myself and continued reading. A few days later, a fellow Commodore user told me he had his own "Home Page" and I should check it out. "What's a Home Page?", I asked. A Home Page is a lot like using a Gopher but it's more fun and can be more direct. In some cases you might use a Gopher to begin your journey on the World Wide Web, but once you start, things change a bit. For instance, if you've been using plain ASCII terminal emulation to move around, once you start accessing World Wide Web (also called WWW or W3), you may want to switch to either ANSI or VT-100 emulation. It's a lot prettier.

But what's WWW and what's a Home Page got to do with it?

If you've ever watched a TV news broadcast discussing the Internet chances are you've seen someone with a computer monitor showing both text and pictures on the screen at the same time. This is what a WWW page looks like to most PC or MAC users. Commodore users won't see the picture but will see the word [IMAGE] in brackets instead. The text will have numbers within brackets near "key" words, or sometimes the [IMAGE] will have a number in brackets next to it. If you select a number it takes you to another area or gives you further information on the subject. If you select a number that happens to be next to an [IMAGE] or a program filename, you can download the program or image. If the image is a GIF file, you can view it with a GIF viewer (see the sidebar for filenames) once you're off-line.

A Home Page is a Web page that is set up by either an individual or a business. Imagine having a text file that anyone in the world can read, plus having the ability to "link" or send people to other places on the Internet that you find of interest or value. Add in the ability to display graphics and/or have programs available to download and you can see why the use of World Wide Web has grown exponentially in the last few months. Businesses in particular have a lot to gain from this type of format. In a very broad sense, it's a form of advertising in which the consumer comes to the advertising source for information about a company or one of its products, as opposed to television commercials which are aimed at a broad range of different people. WWW isn't just for business use, many Universities have found it to fill a range of needs and individuals who feel they have something to share with the world can also set up their own home pages.

Getting More Detailed...

Sounds great, but what does this have to do with the weird addresses like: http://www.msen.com/~brain?

These are called *URLs*, which is an abbreviation for "Uniform Resource Locators". *HTTP* stands for "HyperText Transmission Protocol" which is a type of text file that supports protocols to link other documents or other locations to the text you see. The text after the two slashes in a URL is typically the address of the computer where the data or the service is located, and further slashes after this can specify the port to connect to, or the names of specific files.

Does the Web have a Beginning Point?

There are a variety of ways to begin surfing the Internet using World Wide Web. Easiest is to use Gopher and select a menu choice for WWW. Another option is to telnet to a WWW page. If telnet is an option available to you, can also take advantage of what's called a Lynx Web Browser. There are also graphical-based forms of Web Browsers, but they aren't currently available for Commodore users, as they require software on your computer to allow you to use GUI (point and click style) interfaces.

Lynx (not to be confused with the Commodore archiver of the same name) is a text based Browser that uses ANSI or VT-100 terminal emulations. It lets you see Web pages with more color and controls cursor movements which in some cases, is how information is selected when using this style of Web Browser. Once you've found a method to get on WWW, you can look at Web (HTML) pages, look at Gopher pages, download files (FTP), and read newsgroups (USENET).

Accessing WWW

So How Did I Start Using WWW? To begin learning about World Wide Web, I started with my Internet provider. I was a bit perplexed to discover that WWW was not a choice I had available. I knew I could find information about the Web by using Gopher, so I selected this and in the first gopher menu World Wide Web was listed as an option. I breathed a sigh of relief and selected it.

I was then given several choices of WWW pages to go to, along with an option to "access any URL". At the time I didn't really know what a URL was, but I had an "address" that I'd been given to check out so I guessed this would be the one to choose if I had a specific place in mind and I was right. I typed in the URL and.. I received an error statement that the location I had chosen wasn't in service. Great, I thought.

I tried another URL I'd been given and this time I had found myself looking at Jim Brain's home page (see the sidebar). From here, I selected different numbers and moved to other Web sites, then moved back to Jim's page again by following options that were given at the bottom of the screen. By sheer luck, Jim's page included a link to the first URL that I had tried and had been unsuccessful with. To verify that my first experience wasn't due to my own errors, I tried it and had the same message returned to me. Since I'd been able to move to other locations from Jim's home page, I was reassured that I had typed the information in correctly, but for whatever reasons this particular URL was unavailable. I tried it a few days later and it worked just fine.

I needed more details about World Wide Web for this article, and was able to use the web itself to find the information I needed. There are a few usenet newsgroups devoted to the subject of WWW, and where there's a newsgroup, there's often a FAQ (Frequently Asked Questions) file to download. In the same place where I found the WWW FAQ file, I found a text file which has much of the same information but in an easy to

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read style, called "Entering the World-Wide Web: A Guide to Cyberspace" by Kevin Hughes. The file is a bit dated (1993), but it contains a great deal of useful information and a history of how WWW came to be. I highly recommend it.

Wrap Up

As I mentioned earlier, I haven't personally run into Elvis on the Internet, but my use of the Internet has changed a great deal ever since discovering World Wide Web. Would you believe the IRS has tax forms available in GIF format that you can simply download, print, fill out and mail in? Not all of the tax forms in this format are permissible to use when mailing in your tax returns, and the accompanying text states as much, but several forms are.

Other places I found of interest to me included the web site for my travel agent; a site which allows BBS Sysops space to advertise their bulletin boards; and some off the wall places such as Spider's Web, which had links to a variety of sites such as Monty Python songs and skits as text files. I've included the URL's you'll need to visit some of these sites in the sidebar, as well as many Commodore-related ones.

Jim Brain's Home Page viewed with a graphical Web Browser.

Since the World Wide Web is relatively new, I won't chastise you if you got here by accident. Click here to go back to the Msen Home Page.

Meet Jim Brain:

You have reached my home page. I am glad you stopped by. In case you don't know, I have a varied number of hobbies and interests. So, I have used WWW's features to try and group my interests into categories. Pardon my amateur attempt at this, as I am new to creating HTML files.

If you are interested in a topic, please click on it. You can choose from the following topics:

- Compuware Corporation (Jim's place of employment)
- Brain Innovations (Jim's side business)
- Commodore Info (Information of all kinds on CBM computers)
- Personal Information (Self explanatory)
- The Brain's Automobiles (Information on our "fleet" of autos)
- The PowerPlove Serial Interface (The low-down on this unit)
- ACM at UIUC (The best organization I used to belong to)
- Brain's mobile Diagnostics (My Parent's auto repair facility)
- My Resume (for those interested)
- Jim's Wants List
- Other

If you want to learn more about the World Wide Web, I have provided links to the National Center for Supercomputing Application (NCSA) WWW pages. This will provide you with a easy way to learn more about the WWW. To start I would suggest looking at the NCSA Mosaic Demo Document. For a launching point I suggest looking at the Starting Points for Internet Exploration page. In addition, the following will provide information on the Internet:

- What's New with NCSA Mosaic and the Internet
- Internet Resources Meta-Index at NCSA

For More Information:

To request more information or find out the status of ongoing projects, please send email to **brain@mail.msen.com**.

Again, thanks for stopping by. Come 'round these parts again sometime and say 'hi'.

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There's no telling what you can find on the Internet using the World Wide Web and Gopher. Whether you're looking for information for a report, looking for businesses which cater to your interests, or want to find the latest Commodore file or information, it's all there—in the web. Who knows, you may even find Elvis!

Jim Brain's Home Page viewed with a text-based Web Browser.

```
                        WELCOME TO:
                JIM BRAIN'S CBM 8-BIT COMPUTER HOME PAGE

Introduction

 This page should help users of Commodore 8-bit machines to get the
 information they need quickly through the use of World Wide Web.  I
 intend to add to this page as time permits. For now, I have included a
 number of things I write and maintain for Commodore users, as well as
 hotlinks to other

   Commodore 8-bit sites, and information from  other authors

Informational Material

 You may take a look at the wealth of new and experienced user
 information contained in the  [1] Frequently Asked Questions List
 (FAQ) from the USENET newsgroup comp.sys.cbm.

 If you are interested in running any one of the many CBM 64 emulator
 programs for the various platforms, be sure to glance at the
 [2] Comp.Emulators.CBM FAQ, from the USENET newsgroup of the same
 name.

 By the way, if downloading programs are your fancy, be sure to check
 out the FAQ for [3] Comp.Binaries.CBM .
 If you are searching for documentation on the Commodore internal, how
 to build or expand the Commodore computer or its peripherals, or just
 how to make maximal use of the operating system, make sure and look at
 the [4] Documentation page.

Commodore Trivia Material

 How much do you know about your Commodore machine?  Brush up by trying
 to answer some [5] Commodore Trivia.

Pictures of Commodore Equipment

 If you are searching for pictures of your favorite Commodore
 computer(s), please take a look at the [6] CBM Snapshot Album .

Other Commodore World Wide Web (WWW) Sites

 This is by no means the only Commodore 8-bit WWW Page.

 The [7] Pittsburgh Commodore Group has online versions of its
 newsletters and related information available on its WWW site. Also,
 the [8] Champaign Urbana Commodore Users Group (CUCUG) has set up a
 page describing their endeavors.

 For those who wish to delve into more technical areas, please check out

 [9] Marko Mäkumlkel&uml's page and
 [10] Jouko Valta's page, since Marko and Jouko are known for their
 technical expertise. For information on the LUnix operating system,
 please check out [11] Daniel Dallman's WWW site.

 While not devoted to Commodore stuff, there's a few tidbits of stuff at

 [12] Craig Bruce's WWW site, and some goodies at
 [13] Christopher Phillips' WWW site, [14] Adam Lorentzon ,
 [15] Adrian Forte , [16] Fredrick Backman , [17] Jouko
 Valta , [18] Paul Gardner-Stephen , [19] Svein Ynguar
 Willamsen , [20] Sean Peck , and [21] Svein Ynguar Willassen
 all have miscellaneous tidbits of Commodore info on their own pages.

 Even our competitor's have Commodore info.  Take a look at the
 [22] Atari 8-bit Home Page . Although the I don't think you can call
 it an online magazine.  [23] Commodore Format does have some
 information on WWW.

 The [24] Personal Computing and Emulation Homepage has some Commodore
 tidbits available, and the [25] Yahoo Commodore Index has a bit about
 us in there as well.

                        I welcome you to check out these places.

Suggestions

  I encourage visitors to this page to mail me with suggestions or with
 information about links to other Commodore related WWW pages.  Please
 help me add to the collection of Commodore information contained here!

   [26] Jim Brain
   Brain Innovations, Inc.
   602 N. Lenen
   Fenton, MI  48430

                                        [27] brain@mail.msen.com

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GIF Viewers For Web Users

C64 mode: VGIF.SFX by David Jansen
128 mode: GDS.SFX by Eric Rafanan
GEOS mode: GEOGIF.SFX by Randy Weems (Coverts GIF files to geoPaint format)

Browsers Accessible by Telnet

Telnet to: "**telnet.w3.org**", log in as "www". Text or Full screen Lynx browser, requiring VT-100 or ANSI.
Telnet to: "**ukanaix.cc.ukans.edu**", log in as "www". Full screen Lynx browser, requiring VT-100 or ANSI.

Web Pages to Check Out

Important Commodore Sites

http://www.msen.com/~brain/
US Commodore site maintained by Jim Brain
http://www.msen.com/~brain/guest/cmd/
Creative Micro Designs' Home Page
http://monami.psc.edu/
The Pittsburgh Commodore Group site
http://www.cs.umd.edu/users/fms/comp
A Commodore files site
http://www.nada.kth.se/~d93-alo/c64/
Commodore 64 Games Home Page
http://www.warwick.ac.uk/~stuce
European Commodore site
http://kbt.com/bbs/bbslist.html
An interactive BBS Listing
http://ccnga.uwaterloo.ca/~csbruce/index.html
Craig Bruce's home page

Other Interesting Sites

http://www.yahoo.com
The Yahoo Brothers Index (a quick way to find other locations)
http://www.anzac.com
Anzac Travel (I'll have a home page here)
http://gagme.wwa.com/~boba/kids.html
Uncle Bob's Kids Page
http://gagme.wwa.com/~boba/spider.html
Spider's Web (Fun variety)
http://gagme.wwa.com/~boba/pick.html
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8580 ..... $12.95

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C-128-D $49.95

Power Supplies

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C-64 repairable $19.95
C-64 Heavy Duty 5.2 amps $39.95
C-128 Heavy Duty $39.95
1750 5.2 amps $43.50
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1581 external 110 volts $14.95

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1750, C-64, 512K (*) $64.50

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C-128 computer w/ P.S. $89.95
C-128D computer w/ K.B . $119.50

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C-64 Keyboard $34.50
C-128D Keyboard $48.50
1084S Monitor to C64 Cable $6.95

Floppy Disk Drives

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1541II (New in box) $74.95
1571 ..... $99.50

Manuals

Most service manuals are available. Call for pricing and availability

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Over The Edge

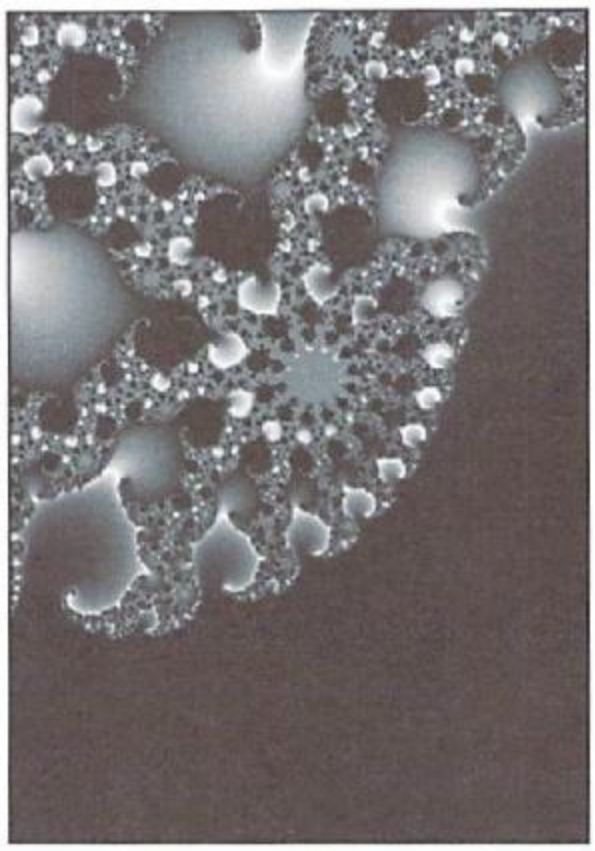
By Gaelyne R. Moranec

DON'T BOX ME IN

Recently, I picked up a computer club newsletter and read a list written by a Commodore user, putting us into neat categories from the Game Players to Techno Gadget Geeks. It was fun reading, but a quiet voice whispered in my ear, "this isn't right...". A few days later, while reading echo mail, I found yet two more lists, the first with types of BBS users, the second describing "typical" BBS Sysops and their traits. Both lists were funny and had truth to them, but each completely left out the "good user" or "good Sysop", those people who quietly help out, follow the posted rules and make telecommunicating a pleasure for what I hope are a majority of helpful and friendly users and Sysops.

Everyone seems to enjoy lists, which is probably why David Letterman's 'Top Ten' lists are so popular. In an age when "political correctness" is the rage, I almost hesitate to voice my dislike of being lumped into a category, even if in humor, mainly because I fear my dislike of the types of lists I've seen recently itself smacks of "political correctness", in a way. My objection is there's no way to neatly put any one person or computer user into a category. Most of us fit into more than one, some of us into several. My other objection is that it limits our view of each other. When we start narrowing our focus, it's too easy to miss seeing what makes us individuals. This has always been one of my objections to many of those things that the 'politically correct' (hmm... there I go categorizing...) fall into, where good intentions at the onset get carried away by zealousness and a narrowing of view, to the point of tunnel vision.

We all get just a bit twitchy when we hear "all Commodore users are kids playing games", or "no one uses a Commodore for serious computing". We all know neither statement is



true, yet when we start boxing ourselves into categories, we're not doing ourselves any favors, either. One of the reasons the Commodore is still popular is the variety of things it can do, and the way it manages to suit the needs and interests of many users. If it only had one use, I'd not be writing this, as the Commodore 64 would have joined the 'true' orphan computers long ago.

Lest someone read this and get the idea I'm saying "all lists are bad", I'm not. In fact, this precisely emphasizes my point! It's the habit people get into of limiting their focus that concerns me. It makes as much sense as deciding that paper is a harmful substance because millions of people suffer paper cuts each day.

Here's my list of things you can do to broaden your computing horizon, in no particular order:

1. Read more than one publication.
2. Try new and/or different programs.
3. Join, attend and participate in a User Group.
4. Write a program that does something that *you* want it to do.
5. Try a new peripheral (new or used).
6. Solve a problem. (Hardware, or software, etc.)
7. Ask someone else how they would... solve a problem, write a program, use a peripheral...
8. Learn to use a modem.
9. Write a letter to magazine editors and tell them *your* interests, likes and dislikes—and don't limit it to just the magazine, include those things you like and don't like about your computer, too.
10. Contemplate on how it is that 100 people can have the same computer and the same software, and yet each use it differently.
11. Use your computer to enhance *other* interests you have.
12. Help someone else learn how to use a computer.
13. Day dream about what you would consider YOUR ideal computer setup, be it hardware, software, or both—and let your imagination go wild. Don't limit it to what's currently available—after all, when the C64 first came out, the 1541 disk drive wasn't even available and now we have RAM devices, fastload cartridges, JiffyDOS, hard drives and can use 28.8K modems....
14. LEARN! Read books, browse old and new magazines, ask questions.
15. Share what you learn with others.
16. And please.... if you're gonna lump people into categories, just call mine "Commodore User, at large".

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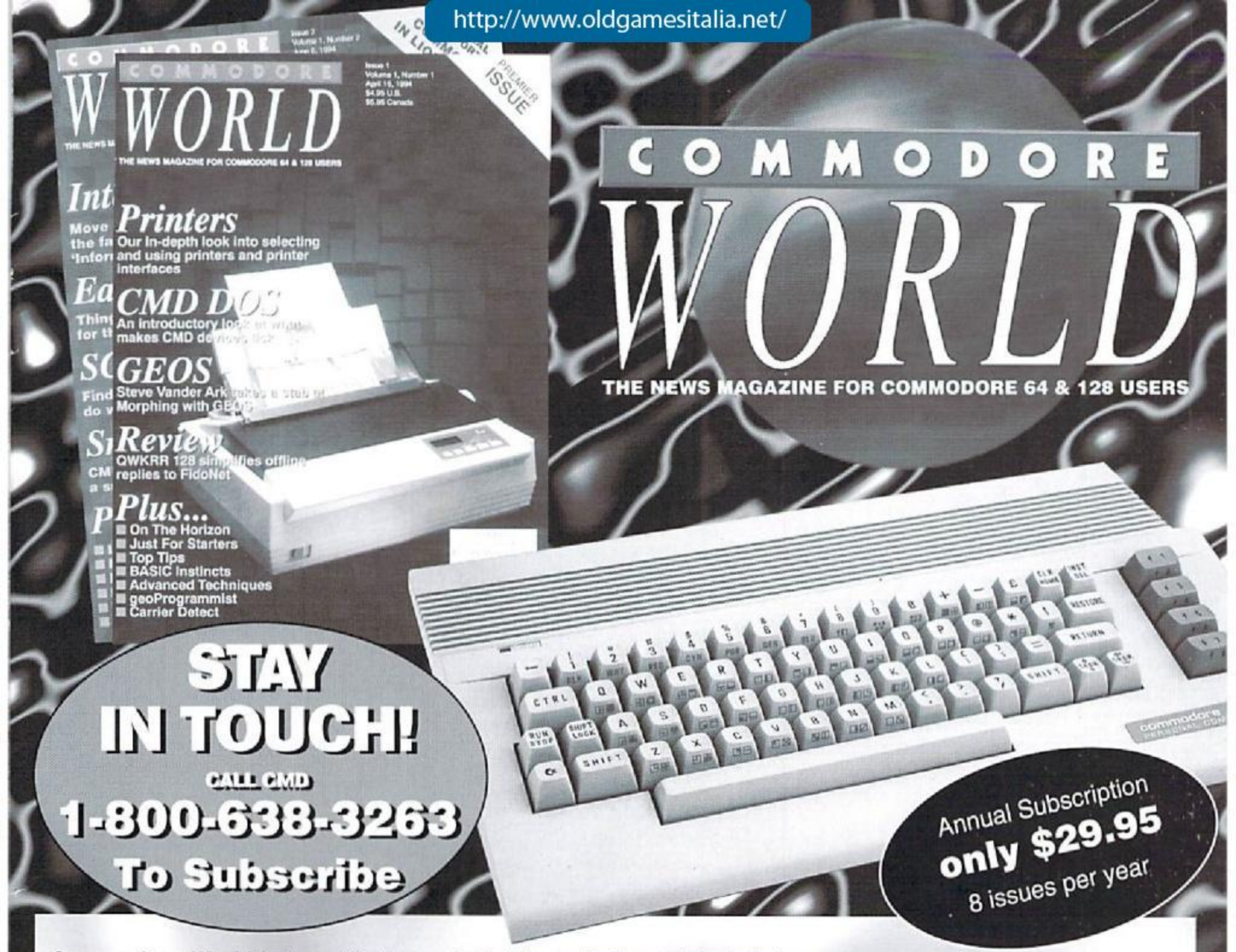

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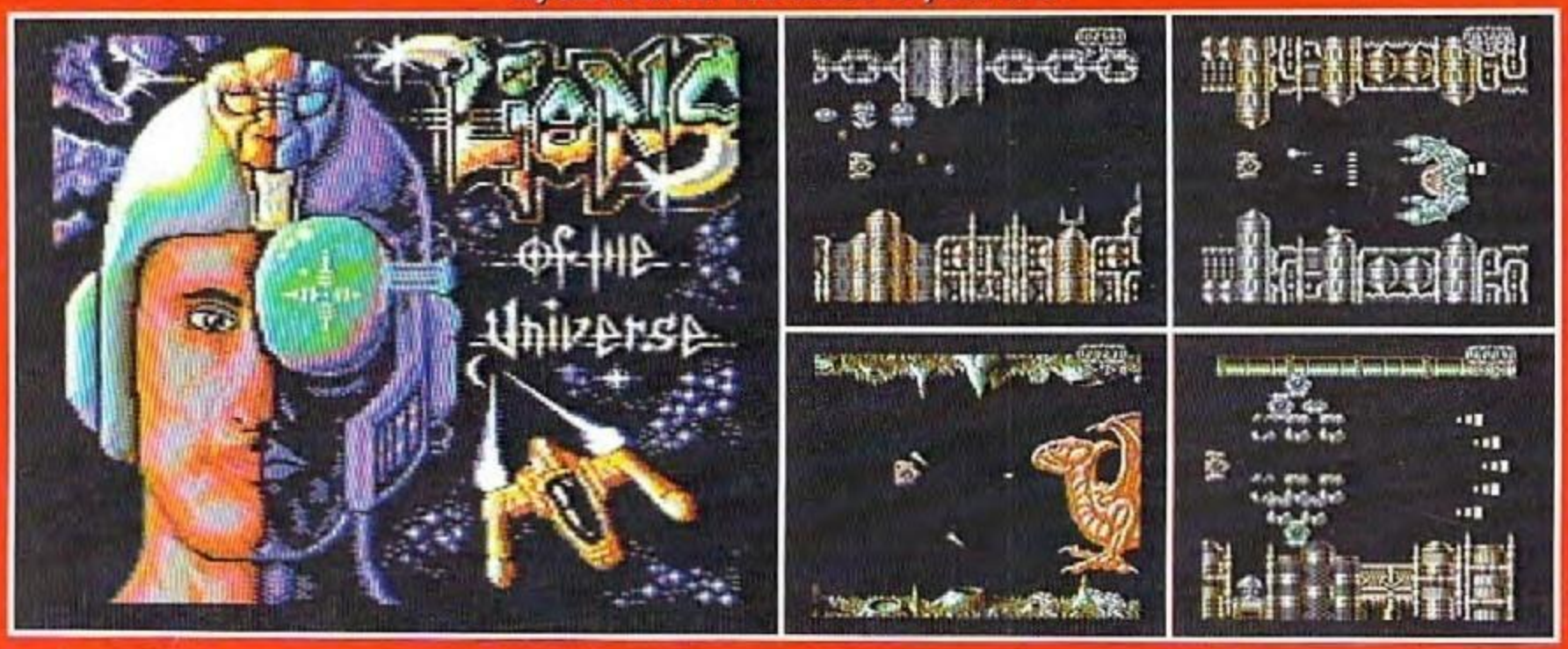

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